American Journal of Public Health

VOLUME XVII AUGUST, 1927 NUMBER 8

THE CONFERENCE OF EPIDEMIOLOGISTS

THE recommendations of seven committees, as modified and adopted by the conference make up what is probably the first coördinated statement endorsed by a group of sanitarians on epidemiology as a fundamental branch of public health.

AT THE invitation of the Rockefeller Foundation, 56 sanitarians met at the Johns Hopkins University School of Hygiene and Public Health on May 12 and 13. The conference was called to order by Dr. Charles V. Chapin, President of the American Public Health Association. Dr. E. S. Godfrey, Jr., was elected presiding officer.

Dr. Ferrell nominated as members of the Committee on Topics and Committees Wade H. Frost, M.D., E. S. Godfrey, Jr., M.D., and W. G. Smillie, M.D. The committee recommended the adoption of topics and the appointment of committees as follows:

Collection and Systematic Use of Morbidity Reports—E. Sydenstricker, Carl E. Buck, Dr.P.H., Millard Knowlton, M.D., Albert Love, M.D., Kenneth F. Maxcy, M.D., Commander J. R. Phelps, U.S.N., and Lowell J. Reed, Ph.D.

Provision for Emergency Study of Epidemics—A. J. Chesley, M.D., Mark F. Boyd, M.D., J. P. Leake, M.D., Lt. Col. J. F. Siler, U.S.A., and H. C. Stewart, M.D.

Research in Epidemiology—Charles V. Chapin, M.D., W. L. Aycock, M.D., W. H. Frost, M.D., Prof. E. O. Jordan, W. H. Park, M.D., A. S. Pope, L. T. Webster, M.D., Edwin B. Wilson, M.D.

The Development of Epidemiological Service in Local Health Departments—J. J. McShane, M.D., D. G. Gill, M.B., D.P.H., H. G. Grant, M.D., Don M. Griswold, M.D., D.P.H., George H. Ramsey, M.D., and C. P. Robbins, M.D.

Organization of Epidemiological Service Within State Departments of Health—C. L. Scamman, M.D., J. A. Ferrell, M.D., E. S. Godfrey, Jr., M.D., C. N. Leach, M.D., and R. H. Riley, M.D.

Selection and Training of Personnel—Haven Emerson, M.D., M. E. Barnes, M.D., J. A. Doull, M.D., Major G. C. Dunham, U.S.A., W. H. Howell, Ph.D., M.D., W. G. Smillie, M.D., and Hans Zinsser, M.D.

INTRODUCTION

The Conference adopted as an introductory statement:

Epidemiology is defined by Hirsch as:

A science which will give, firstly, a picture of the occurrence, the distribution and the types of the diseases of mankind in distinct epochs of time and at various points of the earth's surface; and, secondly, will render an account of the relations of these diseases to the external conditions surrounding the individual and determining his manner of life.

The application of the science of epidemiology through the sciences and arts of public preventive medicine requires

the complete function of the various standard bureaus or divisions of public health departments, whether or not their organization includes a position of epidemiologist or a division of epidemiology specifically so named.

So far as epidemiology is concerned with the control and study of communicable diseases by departments of health, the following general statements of functions, organizations, and qualifications or training of personnel express the present opinion of this conference.

COLLECTION AND SYSTEMATIC USE OF MORBIDITY REPORTS *

Believing in the principle that the simpler the form of notification, the more complete reporting will be, it is recommended that the minimum information to be required in the reporting of all notifiable diseases shall include:

1. Name of disease
2. Name of patient
3. Address
4. Sex
5. Age
6. Color and race
7. Physician's name, or name of informant, in case of a suspicious case
8. Date of report

Reports should always be rendered primarily immediately to the local health department and forwarded to the state department of health. Obviously, reports to local and state health departments should be immediately available to the individual having charge of epidemiological work.

It is recommended that additional information be secured by suitable administrative methods for those diseases for which control methods may be instituted.

For investigation and control, much more detailed information frequently will be necessary, but usually this can be obtained only by special investigation.

That the minimal tabulations for epidemiological use should include:

1. A constant knowledge of the existing number of cases of the more important communicable diseases, and a graphic representation of their location.
2. For as brief periods of time as the size of the locality will permit, a measure of the prevalence of the more important diseases as compared with their usual incidence for that locality and that period of time.
3. The publication, at such times as seem appropriate, of reports on the prevalence of communicable diseases that may prove useful in preventing the spread of such diseases.
4. At least annual tabulation and publication, with such analysis by age, sex, race, month and local distribution as may prove practicable, of cases of death of notifiable diseases.
5. The careful analysis and publication of information available on special aspects of the disease problem. Such publications should include all the essential information upon which the conclusion is based.

PROVISION FOR EMERGENCY STUDY OF EPIDEMICS

The prompt reporting of cases is necessary for emergency study of epidemic diseases.

The most expeditious method of bringing these reports to the attention of the responsible health authorities will depend on the administrative organization existing in the state. If the organization extends from above downward from the state health officer through districts, counties, or cities to the local health officer, the individual reports of cases should be forwarded by the local health officer to the district or county health officer, compiled by him for prompt transmission to the central office, the compiled reports being accompanied by the individual case records.

For certain diseases and under certain conditions to be outlined below, district or county health officers should submit these reports by telephone or telegraph. In territory where no intermediate health organization exists, the individual case report should be mailed direct to the central health office, except that immediate telegraphic report should be made as indicated in subsequent paragraphs.

* Special methods of reporting may be necessary for venereal disease.

Of the forty-two notifiable diseases listed by the American Public Health Association, Committee on Standard Regulations for Control of Communicable Diseases (see *Public Health Reports*, Dec. 17, 1926),* certain diseases may be distinguished either because of possibilities for their epidemic spread or that we possess practicable measures for their control, or because of their unusual or occasional appearance within the limits of the United States, all of which circumstances justify a state health department paying special attention to their incidence.

For example, diseases for which control measures are well understood: smallpox, typhoid and paratyphoid fevers, diphtheria, scarlet fever, septic sore throat, dysentery (amoebic, bacillary); and diseases selected for study and for trial of control measures: meningococcus meningitis, poliomyelitis, encephalitis (epidemic type); and exotic diseases: plague, cholera, typhus, yellow fever. Certain other diseases of considerable importance from a public health standpoint are not included because of their chronic character or the lack of effectual control measures.

In a disease of highly malignant character (virulent smallpox), or a disease whose incidence has been reduced as a result of effectual control measures (typhoid) as well as exotic diseases, the occurrence of a single case should be considered an emergency, and telephonic or telegraphic reports should be required. With regard to the other diseases, whenever the daily check of morbidity reports indicates an unusual prevalence, a field investigation is called for. This is understood to be supplemental to the routine follow-up of every case upon receipt of report.

Having determined the existence of an emergency caused by a disease whose etiology and means of control are reasonably well known, immediate field investigations should be made to:

1. Determine the source and route of infection
2. Find unrecognized or unreported cases
3. Stop the spread of infection
4. Study records obtained during an epidemic for the purpose of adding to our knowledge of the disease in question

Diagnosis always should be confirmed by laboratory or clinical examination, or both, as the first step of the investigation. Unless the local health department has trained personnel and adequate facilities for epidemiological field work, the state department must supply them during the emergency.

Time is the paramount factor of emergency field work. No time should be lost after the first report of an emergency is received in applying every means, state and local, to the solution of the epidemiological problem.

Success depends chiefly upon the epidemiologist himself, his training, his experience, his ability to recognize the essentials of his problem, and to do the right things in the right way in the shortest possible time.

Every epidemiologist, especially the state epidemiologist, should acquire accurate information about the territory he serves and about its people from every reliable source, so that he may have always for instant reference in his office and as a working guide in the field the most complete data obtainable to apply in emergency work, where time counts most and misdirected effort may mean loss of life and unnecessary expenditure of public and private funds.

Statistical data of all kinds, maps, information obtainable from the laboratory, the sanitary engineer, the parasitologist, the livestock sanitary board and the school authorities should be kept up to date in the files of the epidemiologist.

Very useful data, especially those relating to previous occurrence of diseases which, as a rule, confer immunity, and to vaccination and immunization in certain

*EDITOR'S NOTE: The official report of the Committee (including certain modifications of the U. S. Public Health Service) was printed in the March, 1927, issue of the AMERICAN JOURNAL OF PUBLIC HEALTH. A limited pocket reprint is available.

diseases may be found in the local health office or in the schools. Wherever possible, the state epidemiologist should cause such data to be uniformly recorded and kept up to date and available for use in the routine work of disease control, as well as in the emergency study of epidemics.

RESEARCH IN EPIDEMIOLOGY

Research in epidemiology should be an essential part of every public health program. It is only by emphasis on research that a competent staff can be recruited and maintained. Knowledge of the factors concerned in the spread of disease is prerequisite to effective modes of prevention, and, as a matter of fact, much of the knowledge that is to-day applied in prevention is the outgrowth of field research. Such research is especially the function of public health organization because it supplies the detailed information which is necessary to reduce general principles to practical application, and also because these organizations possess exceptional and almost exclusive opportunity for making the collective investigations.

To cite only a single example, the abandonment of the cumbrous and expensive procedure of gaseous fumigation, which is now generally recognized as unnecessary, is the direct outcome of investigations made by Dr. Chapin solely by the utilization of the facilities for observation afforded in the Providence Department of Health. Many other examples might be cited, but in fact practice in control of almost every infectious disease has been revolutionized by advances in knowledge in the past two decades.

The committee does not undertake to make any formal recommendations as to methods or problems. The subjects chosen for epidemiological research in each state should naturally be determined by local conditions, facilities and personnel. It must never be forgotten that an epidemiological conclusion is a matter of cogency of evidence which may be obtained (1) by case to case study; (2) by analysis of mass statistics, and (3) by laboratory or experimental procedure.

SUGGESTED TOPICS FOR RESEARCH

The following research problems were presented to the Committee on Research by members of the conference. They illustrate types of investigation that in the opinion of the conference can be properly and profitably undertaken by health agencies. It is hoped that the coöperation of health agencies, individuals, and educational and research institutions can be enlisted in these and similar studies:

1. Varying degrees of contagiousness of different diseases in families.

2. How many cases of chickenpox reported in different areas of the United States last year? How many examined for diagnosis? How many cases of smallpox found? How much time lost in isolation and quarantine?

3. Is the quarantine of contacts necessary in scarlet fever immunes? Non-immunes?

4. What influence has hospitalization on the prevalence of scarlet fever? Diphtheria?

5. Relation of contagious diseases to economic status.

6. What influence has placarding on the prevalence of contagious disease?

7. The incidence of secondary cases of whooping cough and other diseases by age, similar to Dr. Chapin's figures for diphtheria, scarlet fever and measles.

8. From 1906 to 1909 a detailed study was made in Washington, D. C., of the epidemiology of typhoid fever. Repeat such a study to show changes in findings.

9. Value of the various methods of prophylactic treatment vs. the scarlet fevers. Careful records of attack rates in comparable groups of protected and non-protected people.

10. Studies on the period of infectiousness of scarlet fever.

11. Laboratory studies relative to typhoid fever carriers.

12. The frequency with which alarming symptoms occur within one or two hours of injection of horse serum in those who have previously received toxin-antitoxin. Control material for such a study; namely, the frequency of similar accidents among those who have never, so far as is known, previously received horse serum. (Limited to large city populations.)

13. Studies on typhoid fever or other diseases in other states similar to those of Drs. Maxcy and Leach on the prevalence of typhoid in larger places, smaller places, and rural districts in Alabama.

THE DEVELOPMENT OF EPIDEMIOLOGICAL SERVICE IN LOCAL HEALTH DEPARTMENTS

The report of the committee is limited to a discussion of epidemiological service of small municipal or county health departments where there is no separate personnel for epidemiological work.

It is the opinion of your committee that the procedures to be carried out might be developed according to the following outline:

1. The collection of morbidity reports of communicable disease from all possible sources.

2. The routine study of individual communicable disease cases:

(a) Investigation of cases and suspected cases for diagnosis, including facilities for laboratory diagnosis.

(b) Determination of the source of infection when possible. (Note: In localities where there is a full-time health officer this official should be expected to fill out and make use of detailed epidemiological case cards for certain diseases.)

(c) Study of the relationship between individual cases as they occur and the community as a whole, together with the subsequent formulation of a program to meet the needs of the local situation. (Note: In localities where there is a full-time health officer, these studies might include the use of spot maps, graphs, and other devices.)

(d) Surveys to determine environmental factors concerned in the spread of disease.

3. Services to the state department of health:

(a) Forwarding of morbidity reports.

(b) Collection of information for special studies carried on by the state health department.

ORGANIZATION OF EPIDEMIOLOGICAL SERVICE WITHIN STATE DEPARTMENTS OF HEALTH *

The committee recommends that:

1. There shall be a bureau or division dealing with epidemiology in each state health department co-equal with other essential divisions in the organization.

2. The function of this bureau or division, with respect to investigation of disease, shall be:

(a) The analysis of morbidity statistics whether these be collected directly or through some other division.

(b) The correlation of the mortality statistics obtained through the division of vital statistics with the morbidity data.

(c) The securing of immediate information from the division of sanitary engineering or other divisions as to the prevalence of disease.

(d) The use of laboratory data as a source of primary information as to the existence of communicable diseases.

(e) To secure special service from any division as to the causative factors of disease.

(f) To classify, analyze, and interpret all available information with reference to disease for administrative guidance in formulating sound plans of procedure, and acquainting health agencies, the medical profession, and the public with the facts.

(g) To conduct field investigations for the purpose of collecting or discovering facts essential to more effective control procedures.

(h) To assist local authorities in epidemiological activities.

3. The work of the division requires the services of professional, clerical and field personnel.

(a) By "professional" personnel reference is made particularly to the director of the division. He should possess exceptional inherent qualities such as sound judgment, tact, and poise. He should be well grounded in the knowledge of medicine and public health, and have special training in the differential diagnosis of communicable diseases and a working knowledge of laboratory and statistical procedures. He should have enough assistants in the field to make the division activities effective.

(b) By "clerical" personnel we allude to secretaries and clerical assistants who can handle files, correspondence, and statistical data.

(c) By "field" personnel is meant those members of the staff of the division primarily engaged in procuring epidemiological data, and also the personnel of local health organizations, including the health officer, office assistants, public health nurses, and sanitary inspectors.

(d) The organization of the division of epidemiology should be of such character as to attract and hold competent personnel. There must be security of tenure, the compensation must be creditable, and there must be an opportunity for initiative.

SELECTION AND TRAINING OF PERSONNEL

1. Minimum education requirements for the chief or assistant epidemiologist for state or large city:

(a) The degree of M.D. plus a clinical hospital training including practical experience with acute communicable diseases.

(b) One year's training including a basic education in:

Sanitary engineering

* The principles applying to state departments are also applicable to departments of large cities.

Bacteriology and immunology in their public health applications
Medical zoölogy
Statistics
Public health administration
Epidemiology

This education may be obtained preferably under university auspices but acceptably in actual service.

2. Desirable supplementary training in epidemiology for local health officer of a county or small community:

(a) Preparation, collection, tabulation and analysis of systematic reports and their use.
(b) Diagnosis including a knowledge of the assistance to be expected from laboratory resources as applied to communicable diseases.
(c) Principles of management of local outbreaks.
(d) Knowledge of available resources for the study of exceptional conditions in connection with outbreaks of communicable diseases.

Such training may be obtained in one of the following ways:

(a) Special meetings, demonstrations or reading study supervised by a state or large city department of health.
(b) Temporary assignment to such health department.
(c) Personal instruction by a representative of the state or large city health department assigned to the county or city from the division of epidemiology.
(d) Attendance at schools of public health.

Luncheon was served to the group in the dining room of the School of Hygiene and Public Health. During the luncheon hour on Thursday, May 12, Dr. William H. Welch made a short address. He commended the conference on its purposes and the quality of its membership. In connection with his present work as Professor of the History of Medicine in Johns Hopkins University he told something of the history of epidemiology.

At the luncheon hour on Friday, May 13, Dr. W. H. Howell, Director of the School of Hygiene and Public Health, made an address regarding the School of Public Health. He dwelt upon its establishment, its policies, aims, accomplishments, plans and problems.

MILBANK MEMORIAL FUND REPORT

THE Milbank Memorial Fund's annual report, issued on July 18, shows that in 1926 grants were made by the fund in the amount of $574,307.62, bringing the cumulative total since its establishment to $4,869,557.32. The appropriation in 1926 for the three New York Health Demonstrations, $325,000, was the same as in 1925; and was equivalent, as in both 1925 and 1924, to over 60 per cent of the aggregate appropriations for the year. The other 40 per cent went also for the most part to undertakings directed in one way or another toward the promotion of health; and nearly all of it to projects which had received assistance from the fund in former years.

The year 1926 was the fourth since the inauguration by the fund of its three demonstrations. The report states that from the beginning of the demonstrations in 1923 to the end of 1926 at least half of the residents of Cattaraugus County have had a physical examination through one channel or another, including those given by private physicians. Six thousand persons, 8 per cent of the population, were examined for tuberculosis specially, and 2,000 of these were reëxamined.

Public health promotion through educational work other than the demonstrations was represented by grants to the National Committee for Mental Hygiene, the Council on Health Education in China, the National Tuberculosis Association, the Babies Dairy Association, the Judson Health Center, the Mulberry Health Center, the East Harlem Nursing and Health Demonstration, and the Department of Social Welfare of the New York Association for Improving the Condition of the Poor. Special research in the field of public health was represented by grants to the Saranac Laboratory of the Trudeau Foundation; the Bureau of Laboratories of the New York City Department of Health, for experimental work in the control of measles; and to the New York Commission on Ventilation.

THE MONTREAL TYPHOID FEVER SITUATION

Report of a Special Board of the U. S. Public Health Service

A BOARD of officers of the U. S. Public Health Service was convened for the purpose of surveying the typhoid fever situation in Montreal and its vicinity. The board was organized with a special view to the determination of measures needed to prevent the spread of the infection from that city and vicinity into the United States. It has submitted the following report under date of July 7:

Our survey was begun on June 18, and was terminated on June 29.

Upon arrival at Montreal on the morning of June 18, we conferred with the Consul in Charge of the U. S. Consulate and with officials of the city, provincial and federal health departments.

Our studies included (1) examination of the typhoid fever records of the city of Montreal and other parts of the province of Quebec for the period January 1 to June 18, 1927, and for previous years, (2) survey of the city water supply and sewerage system, (3) inspection of milk plants in the city and of milk receiving stations and dairy farms in the surrounding country, (4) collection by personal interview of detailed epidemiological histories of 203 cases selected so as to be fairly representative of all the cases occurring in the whole epidemic period, and (5) consideration of the adequacy of the locally operating health forces to cope with the situation.

EXTENT AND FEATURES OF THE OUTBREAK

According to the official records, there were reported in the city of Montreal for the period March 1 to June 28, inclusive, of this year, 4,755 cases of typhoid fever with 453 deaths, as against 37 cases with 11 deaths, 48 cases with 18 deaths, and 44 cases with 21 deaths for the period March 1 to June 30 of 1926, 1925 and 1924, respectively. From the official record of cases and without consideration of the possible number of additional cases unattended by physicians or not diagnosed and reported, it is evident that since March 1, 1927, Montreal has suffered a severe epidemic of typhoid fever with a case incidence in proportion to population probably unprecedented by any other large city in the world within the present century.

No evidence was obtained by our survey to suggest that either the city water supply or the city sewerage system operated in the spread of the infection causing the epidemic.

The disease was distributed over the greater part of the area of the city with much more concentration in proportion to population in some sections than in others. The geographical distribution of the cases when considered in connection with the distribution areas of the city water furnished practically conclusive evidence that the city water supply was not infected as delivered from either of the two separate plants, or in its course through the city mains so as to have operated importantly in the spread of the infection causing the epidemic.

The distribution of the disease was such, however, as to suggest strongly that the main volume of the infection had been conveyed through some medium, other than water, which reached a large

number of persons in different parts of the city at the same time.

CAUSATION OF EPIDEMIC

According to the official records furnished us, it was found soon after the beginning of the outbreak that a very large proportion of the cases were in persons who gave a history of drinking milk distributed from the plant of the Montreal Dairy Company, Ltd. The distribution from this plant constituted in the period of causation of the outbreak about one-eighth of the total milk supply of the city. Judging from the epidemiological case histories obtained by the city health department through detailed inquiry at homes of patients and from those obtained by ourselves through usually direct interview with patients or convalescents at private homes, in public institutions and in hospitals, it appears definite that at least six-eighths of the cases in the epidemic were in persons who, in the period of causation, were knowingly exposed to the milk output from the plant of the Montreal Dairy Company, Ltd. We found no evidence that there was any significant disproportion of cases among habitual users of milk from any of the other dairy plants in the city.

The local institutions, such as boarding schools, orphanages, and homes for helpless adults, with a total population of approximately 15,000 furnished a striking contrast. In those institutions whose inmates used milk from the plant of the Montreal Dairy Company, Ltd., the rate of prevalence of typhoid fever was high, while in those whose inmates, though constituting a large majority of the total institution population of the city, used milk from various other milk plants, the rate of prevalence was little, if any, higher than that for the general population in the corresponding periods in the several previous years.

The age distribution of the disease was also highly significant. About 32 per cent of the cases in the epidemic were reported among children under 10 years of age. These points and every other point of evidence obtained by us throughout the course of our study of the situation supported the conclusion that the vast bulk of the infection causing the recent epidemic of typhoid fever in Montreal, Canada, was disseminated in the milk distributed from the plant of the Montreal Dairy Company, Ltd.

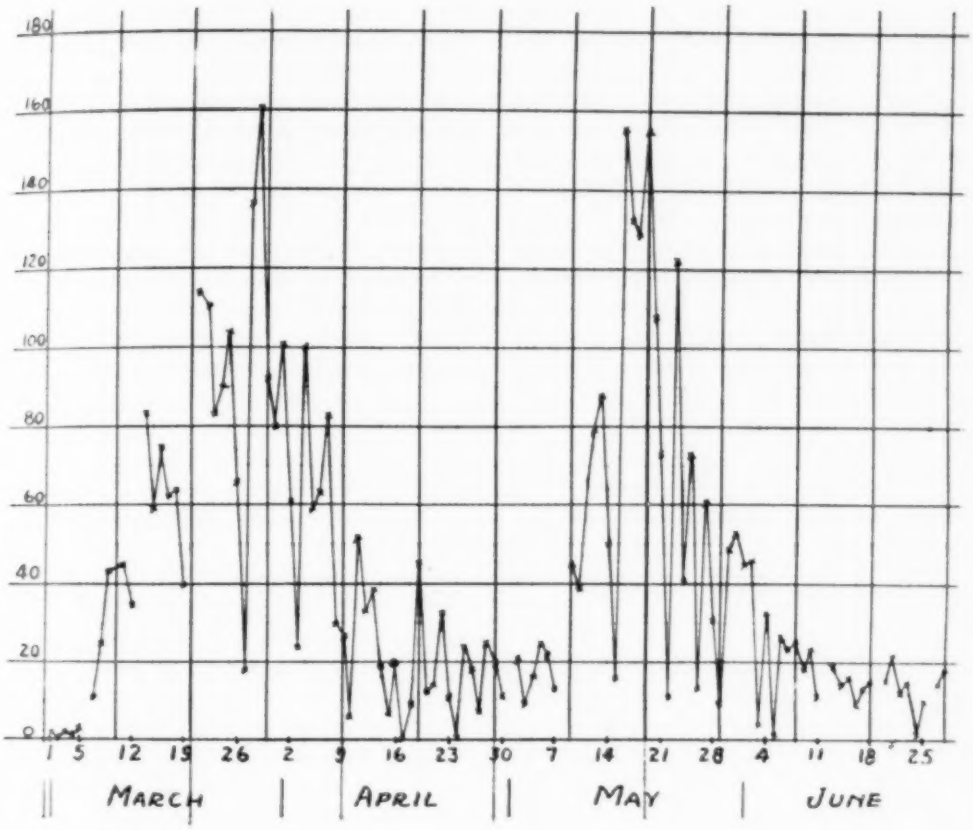
Not a single point of evidence to support any other conclusion has become apparent to us. Exactly where and how the infection was introduced into this milk supply has not been determined. In view of the tremendously high rate of prevalence of typhoid fever among the persons who were exposed to this milk in the period between February 15 and May 15, 1927, it is only reasonable to assume that there was at times within this period heavy dosage infection in this milk when it was ingested. Such evidence of dosage suggests that after the infecting matter was introduced into the milk there was sufficient time and suitable temperature to permit a large multiplication of the typhoid bacilli. Otherwise very gross contamination of the milk with infected human excreta would have to be assumed.

Charts I and II indicate respectively the daily report of cases and the dates of onset of the cases. The date of onset as given in Chart II varies considerably in meaning but according to the best information we could obtain it means as a rule the date which the patient gave as that of the earliest typhoidal symptom or symptoms. From these charts it appears that the causation of the epidemic began about February 15, increased rapidly toward its maximum about February 19, reached its maximum about March 5, continued high until March 18 and then rapidly declined so as to be at less than one-fifth of its maximum rate of operation by March 26. From careful study of individual cases it seems that the decline of causation was greater than is suggested by the charts. In fact, it is quite probable that there was a complete cessation of the main current of infection from March 27 to April 20.

CHART I

MONTREAL TYPHOID FEVER EPIDEMIC, 1927

Number of Cases by Date of Reporting of Cases, City Health Department Records



At about the latter date there was another very sharp rise in the rate of causation. The causation rate of this second outbreak or recrudescence reached its maximum about May 2, began a very rapid decline about May 6, and was down to less than one-fifth of its maximum by May 15. The cases reported with onsets subsequent to May 25 have been in decreasing proportion among persons exposed to the milk distributed by the Montreal Dairy Co., Ltd., and in markedly increasing proportion among persons exposed to personal contact with previous cases.

SOURCE OF MILK SUPPLY

The milk supply distributed by this company was obtained from 1,200 to 1,500 farms. The families on the farms producing milk within the general vicinity of Montreal average large. The farms as a rule are narrow and dwellings along the highways for long stretches are close together. The residents are a sociable people. We estimate that the milk from the farms furnishing the milk distributed by the Montreal Dairy Co., Ltd., was exposed more or less to a population of 20,000. In view of the usual rate of prevalence of typhoid fever in this community it would be unreasonable to assume that there was no typhoid infection among these persons during the period of causation of the city epidemic. Judging from such reports as we received and from quite extensive observations made by us, the average dairy farm in the

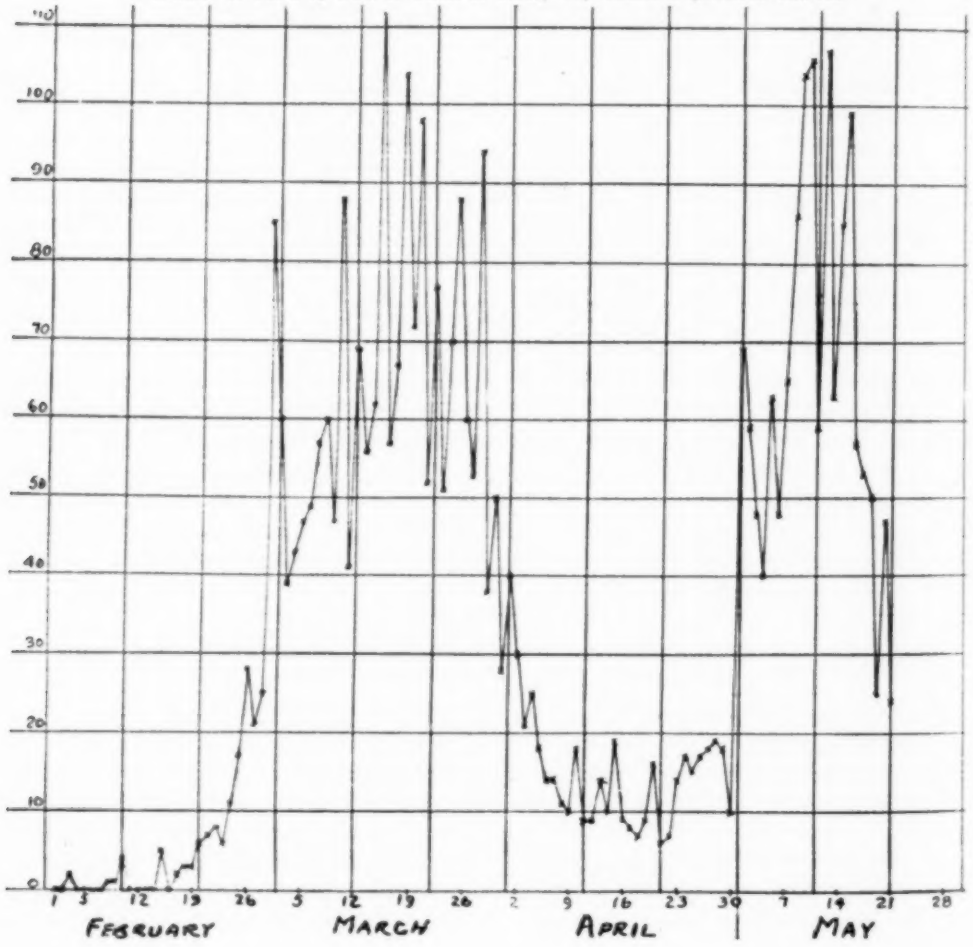
general vicinity of Montreal presents unsatisfactory sanitary conditions. Open privies and open wells are frequent. In much of the country there is a limestone formation outcropping to or near the surface of the ground. Milk house doors are in many instances within a few feet of kitchen doors. Surface streams are used quite commonly as sources of water for the milk houses and for the disposal of sewage from homes upstream.

Some of the milk from the farms was conveyed direct to the city plant of the Montreal Dairy Co., Ltd., and some was sent through four receiving stations in the country. At the receiving stations the milk usually was emptied from the farmer's cans, cooled, placed in the company's cans, and then conveyed to the city plant. There was certainly a possibility for the introduction of typhoid infection at these receiving stations. At one of them the water used mainly for washing the interior of the milk cooling vats and other equipment was pumped from a nearby river which was obviously polluted with sewage and privy contents at numerous points upstream from and near the intake for the water. The amount of whole milk transmitted through this station was markedly decreased after March 26 and was discontinued after May 6.

CHART II

MONTREAL TYPHOID FEVER EPIDEMIC, 1927

Number of Cases by Date of Onset of Cases, City Health Department Records



CITY PLANT PROCEDURE

At the city plant the routine procedure was reported to have been as follows: The milk upon delivery was weighed, cooled in a surface cooler, and passed by gravity to storage tanks where it was held until needed. From the storage tanks it was passed to the clarifier and thence to the open-surface regenerator. From the regenerator it passed to the pasteurizing machine where it was heated to a temperature from 142° to 145° F. and held at that temperature for a period of about 30 minutes. After pasteurization the milk went through the inside of the pipes of the regenerator, then to the surface cooler and then to the bottling machine.

Inspections of this plant were made by Assistant Sanitary Engineer F. J. Moss of the U. S. Public Health Service who was detailed to assist the board in its survey. He reports that the pasteurizing machine was of an efficient type, but that as it was probably operated in at least a part of the period of causation of the epidemic there was a possibility for a very small quantity of milk to leak through the valve leading from the pasteurizer before being held at the temperature of 142° F. or more for the full 30 minutes.

The charts of the recording thermometer were examined carefully by Mr. Moss and Mr. Crohurst. The charts indicate that the milk which was run through the pasteurizer within the period of causation of the outbreak was, with occasional minor exceptions, heated to 142° F. or over and held at that temperature for 30 minutes. Such heating is regarded as sufficient to have killed all typhoid bacilli which may have been in the milk actually so pasteurized. If all the milk which entered the plant direct from the farms or through the receiving stations was freed from whatever typhoid infection it contained by the pasteurization process, the question is where and how the infection could have been introduced into the milk in sufficient volume, or so as to become of sufficient volume, to account for the epidemic.

According to all the evidence obtained by us the milk immediately after leaving the pasteurizing machine was kept at a temperature of 40° F. or below until transferred to the delivery wagons, and as a rule the milk was started on the delivery wagons immediately or within a few hours after being bottled or canned for ultimate delivery. If such was the case, the chances for great multiplication of typhoid bacilli introduced into the milk after pasteurization would have been exceedingly remote, and very gross contamination of the pasteurized milk in the plant would have been necessary to account for the tremendous current of infection which went out with the supply of milk distributed from this plant. It appears that slight contamination of the pasteurized milk by finger touch or otherwise by workers in the plant was possible. All the evidence, however, seems to us to make untenable such an explanation of the main current of the infection.

SEARCH FOR POSSIBLE CARRIERS

A search was made by the city and the provincial health departments for possible typhoid bacillus-carriers in the plant. One of the employes, the foreman of the plant, was found on April 6 to give a positive Widal blood test. This man gave a history of having had typhoid fever 20 years before when he was 13 years of age. His feces have been examined on 9 occasions and his urine on 7 occasions since April 8 by either the city or the provincial health department laboratory, or both. The urine has been found negative on all examinations. His feces were found positive for *B. typhosus* on 4 of the examinations. The last two specimens of feces obtained from him on June 17 and 25 were both found negative for typhoid.

This man states that he knows of no attack of typhoid fever among any of his immediate household associates since his attack 20 years ago. He worked for about 7 years at the creamery of the Montreal Dairy Co., Ltd., immediately

before entering upon his duties at the milk plant of that company on February 5, 1927. He states that as foreman of the milk plant he seldom touched with his hands the milk either before or after it was pasteurized, but that while engaged at the creamery he frequently had finger contact with both the equipment and the cream. No evidence of a typhoid outbreak traceable to the cream from the creamery while he was engaged there has been presented. This man appears tidy and to be of very cleanly habits. He was removed from the milk plant on April 16. The time he began duty at the milk plant synchronzied with the beginning of the causation period of the epidemic, and this might be considered as possibly suggestive of cause and effect.

It is difficult, however, to conceive, if he started the current of infection in the milk, why he ceased to infect the milk during the period from about March 26 to the date upon which he was removed from the plant, April 16. It is entirely unreasonable to suspect that he was a causative factor in the second outbreak or recrudescence which had the peak of its causation about May 2.

The possibility that other persons working in or visiting the plant may have been minor contributory factors in introducing typhoid infection into the milk may be argued, but all the general epidemiological evidence would definitely oppose any hypothesis upon which to base a conclusion that the main current of the infection was derived from personal touch within the milk plant.

On the other hand, the general epidemiological evidence supports the view that the main current of the infection causing the epidemic was in all probability in the raw milk as this milk entered the plant and that through advertence or inadvertence on the part of the workers in the plant a very considerable proportion of the raw milk which entered and was distributed from the plant escaped efficient pasteurization, or even a run through the pasteurizer, regularly or at least frequently during the periods February 15 to March 27 and from April 20 to May 15, 1927. From a study of records available to us it appears certain that at times during the period of causation of the epidemic more raw milk was delivered to the plant than was run through the pasteurizer.

OTHER POSSIBLE FACTORS

The epidemiological case histories and other evidence obtained by us eliminated all factors other than milk which might operate preponderantly in the causation of such an epidemic. The hypothetical factors so eliminated were vegetables, shellfish, "carriers" in public eating places, etc.

The case histories obtained by us do suggest that cream and ice cream distributed by the Montreal Dairy Co., Ltd. —the ice cream having been made at the older plant of the company which was operated in close connection with the milk plant—served as a factor of causation for a small proportion of the cases occurring in the second outbreak or recrudescence.

ADEQUACY OF LOCAL HEALTH SERVICE

When the epidemic began, the city health department was operating on an annual budgetary basis of 40 cents per capita. The working force has since been augmented by the employment of four sanitary inspectors. Only one inspector is especially engaged in inspection of pasteurization plants, of which there are 41 or 42 in the city, and he is said to devote a considerable proportion of his time to other duties. The conditions generally found on the dairy farms indicate that the sanitary control of these farms has been and is yet far from adequate.

Only eight health nurses are now engaged in communicable disease control work in Montreal. With over 3,000 typhoid cases or convalescents at homes in the city, and with the usual prevalence of other communicable disease, the inadequacy of such a small force of nurses is obvious.

Our definite impression is that the city health officer of Montreal has honestly and sincerely recognized his responsibilities during the epidemic and has done his best to render efficient service under most difficult and trying circumstances. It is evident that he should be given ample authority and adequate efficient personnel at once to cope effectively with the present typhoid situation and with other serious preventable disease situations which are likely under existing conditions to develop in Montreal in the future. Such provision is of critical importance to all the people of the city and would be to the business interests of all the citizens and especially of those who may profit from tourist traffic. Since the epidemic began the city health forces have been augmented by the temporary detail of two sanitary engineers and one sanitary inspector from the provincial health department. This provincial force took charge of the milk plant and the creamery of the Montreal Dairy Co., Ltd., on May 21 and apparently has managed them since in a highly efficient manner.

The Montreal Dairy Company's milk plant was receiving and distributing in the city, when the epidemic began, from 6,000 to 8,000 gallons of milk a day. This amount has been reduced to about 2,000 gallons a day since May 21. The milk diverted from this plant, is, according to our information, going in part to creameries in the surrounding country where it is made up into cheese and in part to other milk plants in the city. As there is yet a definite possibility of typhoid infection being derived from some of the dairy farms which formerly were supplying the Montreal Dairy Company plant, rigid official supervision of milk from these and neighboring farms throughout its course from its sources to its consumers in Montreal or elsewhere is important.

With the large number of human foci of potential typhoid infection now in Montreal and in view of the inefficiency of precautionary measures to prevent secondary infections from existing patients and convalescents, the inadequacy of the sanitary inspection force for milk and other food establishments, and the fact that the number of new cases of typhoid fever reported for the ten days ended June 28 averaged over 10 a day, it is obvious that from a typhoid fever standpoint Montreal is not yet a comparatively safe city for visitors and is not likely to become such until much more efficient local health service is established.

PREVENTION OF SECONDARY CASES

It is apparent that the biggest factor in the prevention of secondary cases in the epidemic has been the hospitalization of a large number of the primary cases—about one-third of the total cases reported. The bedside prophylaxis at the hospitals generally—both the emergency hospitals for typhoid cases and the permanent hospitals—impressed us as being painstaking and efficient.

The large volume of milk, cream, butter and cheese shipped from the general vicinity of Montreal into the United States is not now officially controlled at its sources so as to give satisfactory assurance of its freedom from typhoid or other dangerous infection at any time. To remove such menace to the health of the people of the United States, provision should be made at once for effective processing of such foods under adequate official supervision at the places to which they are shipped before they are distributed to the consumers.

CONCLUSIONS

1. The typhoid fever epidemic in Montreal, Canada, since February 15, 1927, was beyond reasonable doubt caused by infection distributed in the output of milk from the plant of the Montreal Dairy Co., Ltd., in that city.

2. Though contributory infection may have been introduced into the milk at one or more of the four stations or within the plant in Montreal the preponderance of evidence is that the bulk of the infection was introduced into the milk at the farm

sources and was enabled to multiply before the milk reached the city plant.

3. Though it was barely possible for a very small proportion of whatever infection was in the milk to pass through the pasteurization machine without being heated long enough and at a high enough temperature to be destroyed, the preponderance of evidence is that a very considerable proportion of the infected milk was passed through and distributed from the plant without being subjected to pasteurization treatment.

4. A large proportion of the milk which at the beginning of the epidemic was distributed through the plant of the Montreal Dairy Company, Ltd., and which is now presumably being distributed through other plants or channels to consumers in Montreal and elsewhere is not now being officially controlled in such manner as to preclude its possible menace to the public health.

5. Montreal is not yet a comparatively safe city for visitors, who are likely to be susceptible to typhoid fever infection.

6. Milk and milk products derived from sources within the general vicinity of Montreal do not appear to be produced or processed under satisfactory sanitary conditions nor under official health supervision approaching adequacy.

RECOMMENDATIONS

1. That state and local health officials and other persons concerned be advised that Montreal is not now, from a typhoid fever standpoint, a comparatively safe city for tourists from the United States to visit and is not likely to be such for months yet to come, unless local health service in the city of Montreal and the vicinity thereof promptly is made much more nearly adequate than it now is.

2. That such steps as may be necessary be taken to encourage or bring about under proper official supervision radical improvement in sanitary conditions under which milk and milk products are produced, handled or processed in the city of Montreal or at any other place in the Province of Quebec within a radius of 100 miles of the city of Montreal for export to the United States; and that such milk or milk products after reaching points to which shipped in this country and before being distributed to consumers be pasteurized or otherwise processed under official supervision so as to be rendered free from typhoid, tuberculosis or any other infection likely to endanger human health.

ACKNOWLEDGMENTS

We are especially indebted for much essential assistance and many courtesies (1) to the health departments of the city of Montreal, the Province of Quebec, and the Dominion of Canada, (2) to the hospital authorities of the city of Montreal, (3) to the Consul in charge of the U. S. Consulate in Montreal, (4) to Surgeon Louis Schwartz of the U. S. Public Health Service, the medical officer assigned to the U. S. Immigration Station for the medical inspection of aliens, and (5) to the many individual citizens in Montreal and the vicinity thereof whom we interviewed.

Respectfully submitted:

L. L. LUMSDEN
Surgeon, *Chairman*
J. P. LEAHE
Surgeon, Member
H. R. CROHURST
Sanitary Engineer, Member
C. E. WALLER
Surgeon, Recorder

Further Observations on the Epidemic

THE CANADIAN authorities are making an exhaustive study of the epidemic which will be a most important contribution to the literature of epidemiology. Meantime many additional observations are available from various sources. These tend to corroborate the findings of the U. S. Public Health Service. Some shed additional light on the situation.

The estimated population of Montreal is 684,500. From March 1 to July 16 the number of cases and deaths reported to the Health Department by weeks were as follows:

TYPHOID CASES AND DEATHS

	No. of Cases	Daily Average of Cases	No. of Deaths
March 1 to 5, 1927	8	1.6	0
March 6 to 12	203	29	5
March 13 to 19	383	55	15
March 20 to 26	568	81	28
March 27 to April 2	650	93	41
April 3 to 9	386	55	43
April 10 to 16	175	25	39
April 17 to 23	125	18	40
April 24 to 30	105	15	24
May 1 to 7	106	15	18
May 8 to 14	367	52	16
May 15 to 21	770	110	29
May 22 to 28	383	50	41
May 29 to June 4	239	34	35
June 5 to 11	128	18	41
June 12 to 18	86	12	18
June 19 to 25	75	11	23
June 26 to July 2	66	9	21
July 3 to 9	52	10	7
July 10 to 16	39	6	4
Total No. of Cases, 5,014.	Total No. of Deaths, 488.		

The age distribution of the cases up to April 30 was:

AGE DISTRIBUTION

Age	Cases
0–10	903
11–20	718
21–30	390
31–40	178
41–50	82
Over 50	46
Unknown	286

Water, as a source, can probably be excluded for the following reasons:

1. There are two separate and distinct water supplies for the city of Montreal. The distribution of cases bears no relation to their water supply. Of the three most affected areas, two are supplied from one source, and the third from another. The city of Verdun, an adjoining municipality, with a separate water supply, had many cases.
2. The age distribution of cases.
3. The absence of cases in residential institutions using city water excepting those supplied by one dairy.

Milk may be accepted as the source for the following reasons:

1. Exclusion of water.
2. The age distribution of cases.
3. Large percentage of cases using the products of one dairy.

In a study of approximately 1,000 cases it was shown that about 90 per cent of these cases used the products of one dairy. Other reasons for accepting this dairy as the source are:

1. No other dairy had so large a number of cases among its customers where it was the only supplier.
2. The number of cases which occurred in the families of the employes of this dairy.
3. Where there were several cases in one family this dairy in practically every instance supplied the milk to the family.
4. Freedom from cases in residential institutions not supplied by this dairy.

Although the dairy in question furnished only one-eighth of the total city supply and the epidemic was particularly widespread, this dairy had a very large share of the store trade and so its milk was generally used by those who regularly or occasionally supplemented their usual supply from the corner store. This dairy also had a large ice cream and cream trade.

FACTORS FOR CONSIDERATION

1. The city plant of the dairy in question is reported to have been careless and resentful of inspection.
2. This dairy bought some milk and cream from uninspected farms.
3. The Health Department had an insufficient staff to carry on inspection and enforce the milk ordinances.
4. The Health Department had an insufficient staff to give adequate laboratory supervision to the milk supply.

5. The foreman of the pasteurization plant was discovered to be a typhoid carrier. (He was replaced by another man, who subsequently became ill, with symptoms indicating typhoid fever. The disappearance of this man made it impossible to prove the diagnosis.)

6. The water supply of at least one of the country collecting stations of this dairy was the Rivière des Mille Des, known to be constantly polluted.

THE RECRUDESCENCE

After the epidemic reached its peak at the end of March, there was a recrudescence about the middle of May. In this connection certain facts in the pasteurizing process may be noted:

1. The pipe line to the bottling machine was connected with feed pipes both from the milk and from the cream pasteurizers. There were valves on both feed pipes.

2. After pasteurization, the milk from the bottles showed a very low bacterial count (under 1,000 per c.c.), but the colon bacilli were present.

3. When the feed line from the cream pasteurizer was absolutely blocked off, colon bacilli disappeared from the milk as it went into the bottles.

4. This indicated that the valve closing the feed line from the cream pasteurizer leaked.

5. There were other leaking valves in the pasteurizing apparatus which permitted some milk to flow through without adequate treatment.

Following the recrudescence of the epidemic the dairy has been operated by a committee made up from the Provincial and Municipal Departments of Health, and it is now believed that the source of the epidemic has been controlled. In the meantime the authorities have promised to augment the budget of the Health Department to provide a sufficient inspection and laboratory service.

LESSONS OF THE EPIDEMIC

Although the final epidemiological reports will doubtless establish the particular loophole or loopholes through which the infectious agent obtained access to the milk supply, there are already certain lessons which might be taken to heart by American municipalities.

1. The essential need of an efficient, properly trained and adequately staffed health department.

2. The importance of a close check on water supplies of milk collecting stations in the country.

3. The removal of any possible contamination through leaking from valves in the pasteurizer.

4. The necessity for frequent checking of pasteurizing equipment to make sure that all milk is held at a proper temperature for the proper time.

5. The desirability of medical supervision of dairy employes, particularly those having anything to do with pasteurizing and bottling.

6. The necessity of every plant having one competent reliable man in charge of sanitary control of the plant, its apparatus and operations.

AMERICA'S GREETING TO INTERNATIONAL NURSES

A MESSAGE of greeting from the public health nurses of the United States to members of the International Council of Nurses was carried by Miss Ada M. Carr, editor of the *Public Health Nurse*, who left New York July 16 to attend the Interim Conference at Geneva, Switzerland, July 27 to 30. It follows:

"In behalf of the public health nurses of America, the National Organization for Public Health Nursing sends heartiest greetings to the Interim Conference of the I.C.N.

"The steady development of international relationships in every field of human endeavor—in government, commerce, education, social welfare, public health and, as evidenced by the I.C.N., in the profession of nursing as well, is one of the most significant phenomena of modern life. The increasing facility and ease of communication are annihilating distance, banishing isolation and widening the horizons and scope of knowledge and interest for the people of every country. We rejoice that our own profession of nursing is not lagging behind in this march toward world unity.

"The National Organization for Public Health Nursing extends its sincere wishes for the success of the 1927 Interim Conference and we hope that before long you will find it possible to hold your conference in the United States, where the warmest welcomes will always await you."

The Interim Conference represents 33 countries and will probably have an attendance of 1,000 delegates.

PUBLIC HEALTH, A PUBLIC BUSINESS

WM. H. PETERS, M.D.
Health Commissioner, Cincinnati, Ohio

PUBLIC HEALTH officials as a rule like to know something about the public health progress of the Convention City that they plan to visit. With this thought in mind Dr. Peters was invited to prepare a description of the work in Cincinnati, where the Association will convene October 17 to 21 for the Fifty-sixth Annual Meeting.

THE public health service in Cincinnati parallels the procedures outlined in the *Appraisal Form for City Health Work*, published by the American Public Health Association. We like to think that perhaps in some small way we have contributed to the development of this standard of performance in health service.

While our per capita cost is still far below the average of 84 cents for all cities outranking us in population, it is a hopeful sign that the appropriation of $196,463 for the current year is the largest in the history of the health department. This is at the rate of 48 cents for each of the 413,000 individuals living within the corporate limits of our city embracing 72 square miles of area.

During the Fifty-sixth Annual Meeting of the A.P.H.A., bureau chiefs will be pleased to discuss their work or take our members about on personally conducted trips. Our offices are in the City Hall.

PERMIT SYSTEM FOR FOOD ESTABLISHMENTS

The food inspectors work under a flexible arrangement and inspect all establishments where foods are manufactured, packed, stored, processed and sold.

A new regulation which provides that all food establishments shall be operated under a permit system is the most constructive measure adopted by the Board of Health since compulsory pasteurization of milk became effective. As a result, 5,500 applications were filed in the Bureau of Food Inspection. All food establishments must meet the sanitary requirements written in the official orders pursuant to the regulation, in order to obtain a permit to operate. A service fee of $2 must accompany the application for a permit. Failure to observe the written orders results in revocation of the permit.

The Bureau of Food Inspection makes surveys of all kinds of foods so that the buying public may be protected against the unscrupulous food manufacturer or purveyor, and from the sale of misbranded and unwholesome food and drink.

Samples of various foods are collected and submitted to the laboratory for examination. The plant sanitation, equipment and methods used are carefully noted on a new score card which was drafted by the chief food inspector, Dr. S. T. Pyper.

The drafting and adoption of a regulation requiring the proper sanitation and equipment for the breaking, canning and freezing of eggs caused a reformation in the egg breaking industry. All frozen eggs are tested by the drill method. This

regulation has had an excellent effect upon canners outside of the Queen City who desire to do business in Cincinnati.

DAIRY AND MILK INSPECTION

Cincinnati's milk supply is obtained from approximately 5,000 dairies located within a radius of 90 miles. These operate under a permit system and pay a service charge of $1 per annum. These dairies are inspected to determine the health of the cows, the general sanitary condition of the barns and equipment, and the methods used in the production of milk.

All milk with the exception of "Certified" and "Inspected" is pasteurized.

Last year 568 new milk houses were constructed on dairy farms; 407 dairies were ordered to discontinue because of failure to comply with Board of Health regulations, but 344 were reinstated after they had made the necessary improvements.

Recording thermometers were installed on all pasteurizing equipment to guarantee perfect pasteurization in our 45 milk plants.

To obtain a more representative analysis of the quality of the milk supply as it is delivered to the consumer, two milk sample collectors on foot were replaced by one with an automobile, and the number of samples taken was increased tremendously.

The average bacteria count of the city's milk supply was a little less than 40,000 per c.c. in 1926.

MEAT INSPECTION

Our meat inspection service is an extension of the federal service and is in accord with the rules and regulations of the Bureau of Animal Industry of the Department of Agriculture. None but trained veterinarians make the antemortem and post-mortem inspection of animals slaughtered.

We have 14 abattoirs and 20 establishments processing sausage—all under municipal inspection.

During the past year 40,524 cattle, calves, sheep and swine were slaughtered under our inspection, and of this number 341 carcasses were condemned outright, in addition to the 8,287 primal parts which were condemned.

RABIES

During the year reports filtered into the office of 781 persons bitten by dogs. This is perhaps only half of the total number. Nine hundred and thirty-eight dogs were under the observation of the veterinarians, who made 1,470 home visits, and 875 calls at the dog pound. One hundred and twenty-five heads were examined in the laboratory for evidence of rabies, of which 53 revealed the presence of Negri bodies.

One hundred and seventy-two dogs under our observation showed clinical manifestations of rabies; 51 were suspicious. Upon our recommendation 152 persons bitten by dogs took the Pasteur treatment.

MEDICAL BUREAU

The Bureau of Medical Inspection and Relief functions in ways which are many and diverse, but all coördinated to form a combination for the single purpose of preventing disease. Eleven district physicians are employed full time at a maximum salary of $2,700 per annum, and they are responsible for the medical relief of the poor, surveillance over communicable diseases and the medical examination of school children. We should have 15 physicians to do a complete job, and the salary should be not less than $3,000.

HEALTH CENTER IN NEW HOME

A new health center at 934 Clark Street was formally opened by Mayor Seasongood and members of the Board of Health on November 23, 1926.

The health center is a splendid asset to our city, serving as the clearing house for the various social agencies. Here our people of very limited means may come

for physical examination and advice, free of charge. In this building we have our divisions for the prevention of tuberculosis and the control of venereal diseases; an adult dental clinic; a children's department; and the administrative office of the public health nursing service. As a result of these endeavors our health center had 14,167 callers last year. Mrs. Louise K. Tooker, superintendent of public health nurses, extends a cordial welcome to the American Public Health Association.

GENERAL

Good practice is followed in the care of the sick. During the current year our doctors made 3,215 home visits and recorded 1,187 office consultations while in attendance upon 1,730 patients.

Quarantine regulations are effected by the district physicians for the purpose of applying scientific measures to prevent the spread of communicable diseases. Twenty-one hundred and seventy-eight homes were placarded, and each home visited from two to four times.

While there was a little increase in the deaths from tuberculosis and diphtheria in ratio to the higher mortality in the city as compared to last year—a situation quite general throughout the country—no city outranking us in population had a lower diphtheria rate than ours, which was 4.3 per 100,000 of population.

Both public and parochial schools are protected by the medical inspection of the Health Department coöperating with the Board of Education.

All children are weighed and measured three times a year, and those who are underweight are given a special physical examination. In addition, the doctor examines all other children in the kindergarten, first, second and third grades, children who have been absent from school four consecutive days, children who wish to participate in athletic events, children applying for work certificates, and applicants for teachers' certificates. Vaccination of school children is compulsory.

Never before have we seen undernourished children respond so beautifully as did those in nutrition classes who were made "free to gain" in weight and height. So successful was the Emerson demonstration that we decided to continue this work on a permanent basis, with a nutrition supervisor in charge.

Eight hundred and seventy-seven children were benefited by the removal of tonsils and adenoids. Eleven hundred and seventy-two who had defective vision were benefited by glasses.

A cardiac survey in nine schools, which gives us a good cross-section of the city, revealed the very interesting fact that only 0.77 per cent of 7,000 children had heart disease. Perhaps the removal of diseased tonsils and adenoids and the care of the teeth, which we advocate, have had something to do with this good rate which is below the average for the United States.

All children in the child caring institutions of the city have been immunized against diphtheria and scarlet fever by the new methods which are gaining in popularity. Thus far we have had no cases in these institutions. This should be a good example for the community at large.

In September, Judge Charles W. Hoffman submitted a certified list of 186 persons in Cincinnati between the ages of 1 and 21 years, who were crippled. In addition to this group furnished by the census enumerator, 83 more were found by our doctors and nurses. Seventy-eight of the children certified by the census enumerators were not examined because we could not locate them.

Of the total group examined, 85 are enrolled in the School for Crippled Children; 79 are in regular classes, and the remaining 27 are not in school on account of their disability. In the last group we found that 14 are under medical supervision, but helpless; 7 are helpless and retarded mentally, the other 6 are over school age.

None was found—and this is a hopeful sign that the law is effective—who, able

to attend, was not getting the benefit of school education.

Those who desire to see the school health work should consult Dr. L. W. Heizer, Chief Medical Inspector.

THE LABORATORY

Our laboratory is the keystone in the arch of public health administration. Here the family physician may submit specimens to confirm the diagnosis in suspected cases of diphtheria, typhoid fever, rabies, tuberculosis, and a host of other diseases.

During the year 1926, 13,564 examinations were made for the medical profession at large and the health center. Throat cultures examined for the presence of diphtheria bacilli totalled 7,013; 1,209 specimens of sputum were submitted; 338 blood slides for confirmation of typhoid and paratyphoid were sent in; 1,100 smears were examined for the detection of gonococci; Wassermanns numbered 3,186 and miscellaneous specimens 565. One hundred and twenty-five dog heads were examined for the presence of Negri bodies.

Except for a little flurry due to accidental contamination of the Eden Park reservoir with garden fertilizer and a colon content in excess of the *B. Coli* standard on December 16, 17 and 18, there was no other evidence of pollution of the city water supply. Forty-six hundred and seventy water samples were examined and of this number 1,049 were found to be polluted. This number included 803 wells and cisterns and 152 swimming pools.

Mr. Otto P. Behrer who is in charge will welcome a call.

10 SANITARY POLICE COVER 72 SQUARE MILES

During the year 1926, the Bureau of Sanitary Inspection handled the thousand-and-one nuisances detrimental to health and comfort, giving special attention to the proper disposal of sewage, private water supplies, swimming pools, the water used on steamboats for drinking and culinary purposes, barber shops, beauty parlors, theatres, odorous trades, the flushing of sidewalks, vermin, rodent, fly and mosquito extermination. The number of inspections recorded in 1926 total 110,943, at a unit cost of 16 cents.

Citizens' complaints alone totaled 3,522 and they were all investigated within 24 hours of their receipt; supervision was exercised over 651 premises which depended upon wells and cisterns for their water supply; 831 samples were taken for analysis from the 27 in-door and 10 out-door swimming pools; and 2,700 inspections were made of 540 barber shops and 212 beauty parlors.

During the year 350 "No-Dumping" signs were posted upon vacant lots. Half of them were purchased for us by the Clean-up and Paint-up Committee of the Chamber of Commerce. The committee also paid for the literature, stressing the advantages of daily sidewalk flushing.

The Board of Health regulation prescribing the minimum of heat to be provided in apartments during the winter season became effective in February, 1926, and many of our citizens have taken advantage of it. Two convictions in municipal court, together with the publicity given by the press, have helped to make this possible.

As in the past, in coöperation with the State Department of Health, investigation was made of all cases of carbon monoxide poisonings. Twenty-eight occurred in gas heating appliances, of which 12 were fatal. Four cases occurred from automobile exhaust, one of which was fatal. Warnings appear almost daily in the public press as to the dangers of monoxide poisoning; thousands of warning pamphlets have been distributed by the department, but in spite of all efforts in this direction deaths from this cause continue.

Sixty-nine offenders were prosecuted in court for violation of health regulations.

Motorization has increased our production; even so, we ought to have 4

more men to make more permanent some of the work which we can only undertake sporadically.

MAKING CHILDREN "FREE TO GAIN"

The first of January, 1926, found the Bureau of Public Health Nursing with a staff of 27 registered nurses, a supervisor in charge of tuberculosis, 2 clerk-stenographers, and the superintendent, who is chief of the bureau. During the year this complement was increased to 31 nurses, and late in the fall a supervisor of school and nutrition work was added.

The public health nurses function in the field, school and clinic under the plan of general nursing. Each nurse carries out the entire program in her district. Her work begins with the unborn baby and its mother. The frightful toll among infants who did not survive the first week of life during 1926 would indicate that the public and private health agencies are not reaching as many expectant mothers as they should. There is great need for more intensive work in this field, especially among the people who are neither rich nor very poor. With 4 more nurses and a supervisor in charge of infant welfare work we would be in a position to reach every home in the city where prenatal and postnatal service is needed. We hope that our doctors will requisition the services of the public health nurse. Half of the deaths in children under the age of one year are due to natal causes.

Perhaps there is no other work so rich in possibilities as that which should be undertaken before children reach school age. Many of our future health problems would be solved if we removed the handicaps of diseased tonsils, defective vision and carious teeth during the preschool age. Preschool children are always welcome at the health center. Through the enterprise of the Parent-Teachers Associations approximately 2,500 children will have been examined by the district physicians and followed up by the public health nurses before they enter school for the first time in September.

Our program in the schools is as heretofore. The nurses assist the district physicians in their examinations; they inspect the children for evidence of successful vaccination, in public, parochial and private schools; they are held responsible for the clerical work incident to medical examination in the schools and when necessary they visit the homes of children who have defects which need to be corrected. This is also an opportunity for the inculcation of good health habits. It is the public health nurse who selects from the children in school those who are in need of the Kroger Hill Summer Camp and she refers them to the health center for observation and classification. When they return from camp their health supervision continues in nutrition classes, open air schools or wherever they may be. During the past year the public health nurses made 11,729 visits in behalf of school children.

Last year nutrition classes were conducted in connection with Dr. William R. P. Emerson's nutrition institute. This year we have ten classes organized and several more under way. Under the Emerson régime we have seen hopeless cases respond beautifully.

As last year we saw the results that followed careful supervision of tuberculosis nursing shown in a better quality of work done, so too, do we see this year a rounding out of the school nursing service with more emphasis placed upon the educational side of work among school children.

The Bureau of Public Health Nursing has for many years been hammering away at the old problem of tuberculosis. The nurses like to think that perhaps in a small way they have helped push down the mortality rate from tuberculosis. They are, however, keenly aware that no one factor is responsible for this decline. During the year the nurses have made 6,994 visits to tuberculosis cases and their contacts. They have tried to build up the resistance of the school child; they have referred suspicious cases to the family

physician or to clinics, and they have been in close touch with proper agencies when material relief was needed. It is interesting to note that of the 1,211 new cases which came to the tuberculosis clinic, 542 were referred by the public health nurses.

The supervisor of tuberculosis nursing interviews private physicians when they report their cases; she makes supervisory and instructive visits with the nurses, and helps them work out their problems in addition to all of her collateral work.

The nurses assist in the venereal disease clinic under the supervision of a staff nurse who devotes her entire time to that work.

From 7 to 8 hours of nursing service is given each week to the delinquent girls at St. Mary's Training School, where from 50 to 65 white girls are treated. Here we have perfect control of the patients, who are being trained in some means of earning a livelihood while they are under the care of our clinician and the nurse.

During the convention members of the local Graduate Nurses Association will be on hand to point out work and places of unusual interest.

THE BOOKKEEPER OF HUMANITY

Birth and death certificates are permanent legal records which must be handled in a manner prescribed by the laws of Ohio. Deaths are classified for practical purposes according to cause, sex, color, conjugal relation and age.

Weekly reports are sent by telegraph to the Bureau of the Census, Washington, D. C., by mail to the Surgeon-General of the U. S. Public Health Service, while monthly reports are sent to the State Director of Health at Columbus.

Requests for certified copies of births and deaths are constantly on the increase. Approximately 2,500 were issued during the year, for which there is a nominal charge of 50 cents. This income is credited to the public health fund and helps to make up our appropriation.

We view with great satisfaction the strides which have been made in our city during the past decade. We were particularly pleased to have a supplementary appropriation of $9,100, which was granted by the city administration during the last half of 1926. With this money we were able to put on 2 additional food inspectors, 1 sanitary police, 4 public health nurses, 1 supervisor of school hygiene and nutrition work, and purchase several automobiles which increased our man power.

The Cincinnati Health Department will be pleased to welcome in all its bureaus and divisions, our coworkers in the American Public Health Association.

NOTE: *An article on "Health Forces in Cincinnati," by Bleecker Marquette, Executive Secretary, Public Health Federation, Cincinnati, will be published in the September* JOURNAL.

NEW APPOINTMENTS IN DE LAMAR INSTITUTE OF PUBLIC HEALTH COLUMBIA UNIVERSITY

Dr. Durward R. Jones, recently Epidemiologist of the State Department of Health of South Dakota, will succeed Dr. Alton S. Pope as Assistant Professor of Epidemiology.

Dr. Adelaide Ross Smith, recently physician to the New York State Industrial Board, will succeed Assistant Professor Frank G. Pedley as Associate Professor of Medicine in Industrial Hygiene. Dr. Smith will be in charge of the Industrial Department at the Vanderbilt Clinic of the College of Physicians and Surgeons.

Dr. Pope is now Epidemiologist of the Chicago Health Department.

Dr. Pedley will assume charge of the new Department of Industrial Medicine at McGill University Medical School on August 1.

VITAL STATISTICS*

Constitutional, Statutory, and Administrative Aspects

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THE LEGAL STATUS of vital statistics has been thought to be fairly well settled in this country. Recently, however, a court decision in Georgia has held that vital statistics cannot be considered as an essential part of "necessary sanitation," as that term is used in the state constitution. This opinion raises certain important points, so that it seems desirable at this time to review the constitutional, statutory, and administrative basis for the collection of vital statistics. The authors have designed a relatively short paper in the hope that it would stimulate discussion and deeper research into these important phases of the problem.

I. CONSTITUTIONAL PHASES †

Under the American plan of government the collection of vital statistics, that is, records of marriages, births, and deaths, is in the first instance a state responsibility. It is a necessary part of the public health activity of the state and is justified under the police power. This principle is well established and its legal acceptance is shown by a number of leading court decisions. The highest court of Tennessee recently discussed the validity of a vital statistics law in these significant words:

"Perhaps the most important duty of the state board of health is to take steps, in coöperation with local health officers, for the prevention of disease.

"This work cannot be intelligently nor effectively prosecuted without the information which the statute in question is designed to afford." [1]

Although vital statistics is primarily a state function, the constitutions of only two states have direct reference to the subject. The constitution of 1876 of Texas says (Section 32), "The legislature may provide by law for the establishment of a board of health and vital statistics, under such rules and regulations as it may deem proper." The constitution (1889) of Washington says (Article XX), "There shall be established by law a state board of health and a bureau of vital statistics in connection therewith, with such powers as the legislature may direct." In all other states the power to establish bureaus of vital statistics and pass laws regarding their collection may be assumed as a proper duty under the inherent police power of the state, which includes, without question, the protection and promotion of the public health.

This basic proposition is supported by the few court decisions to be found on the point. It is surprising that there have been rendered in this country only five opinions by courts of last resort on the constitutionality of vital statistics laws. Four of these are to the effect that a

* Read before the Vital Statistics Section of the American Public Health Association at the Fifty-fifth Annual Meeting at Buffalo, N. Y., October 14, 1926.
† By James A. Tobey.

state law requiring registration of vital statistics is a valid exercise of police power, though one of these decisions, an Ohio case, holds that such a law is not good under the Ohio constitution if it calls for complete data in addition to the mere report of the birth or death.[2] This rigid interpretation, based on the constitutional requirement that neither the service nor property of an individual in Ohio can be taken without full compensation, is not the general rule of law regarding vital statistics.

The first of these five court decisions was rendered in 1882 in Iowa.[3] In it, the court said, "We may observe that it is difficult to discover oppression or injustice in requiring the medical profession to make known to the world statistics which may promote or are promoting the public health." This ruling was followed in Kentucky in 1903.[4] Then came the Ohio case, upholding the general proposition but making a peculiar qualification as to the extent of the data to be collected. The leading case on the subject, however, occurred in 1917 in Tennessee.[5] In it was this striking phrase relative to the collection of vital statistics: "Such a system is just as necessary to a successful campaign by the board of health as is information concerning the enemy's movements to the general in command of an army. There can be no specialized or well directed effort by the board of health without such knowledge."

There have also been a number of other decisions dealing more indirectly with vital statistics, from which it may be inferred that such collection by the state is constitutional. Thus, a New Jersey case[6] in 1918 held that a report by a physician to a county instead of to a local board of health is sufficient, while in Illinois[7] and Rhode Island[8] it has been held that an osteopath is a physician for the registration of vital statistics, though it has been held that he is not in Maryland.[9] So too, there are many decisions dealing with vital statistics as admissible evidence in litigation,[10] and the power of the state to require reports of diseases is now unquestioned.[11]

The Georgia case of 1925[12] deserves special mention. The constitution of that state does not permit the General Assembly to pass county taxation laws except for certain purposes. Included in the objects of county taxation is "necessary sanitation." The supreme court of the state held that a law allowing county taxes in order to pay fees to local registrars of vital statistics was unconstitutional. This result was arrived at by reasoning that vital statistics are not a part of necessary sanitation. For, said the court, "We gravely doubt whether these statistics offer any help in discovering methods in preventing disease." It was also stated that, "Such data might help scientists, engaged in research work, to devise and develop means and methods of sanitation, but such information does not in the slightest degree enable the county authorities to provide necessary sanitation." This reasoning is obviously fallacious and the decision is erroneous. No attention was given by the court to precedents, such as the doctrine in the State v. Norwell case of Tennessee. The decision becomes *stare decisis* in Georgia, however, and the only way to get around it in that state is by an amendment to the constitution, and an attempt to do this has been under way for some time.

There are undoubtedly many other situations similar to the Georgia case, which have, fortunately (or unfortunately) not yet reached the courts.

II. STATUTORY PHASES *

One justification for a vital statistics statute has been overlooked quite often in the effort to secure nation-wide adoption of the Model Bills for the registration of births and deaths. This particular point bears also upon contemporary effort to secure some uniformity and effectiveness in the registration of marriages and divorces. It relates to the use of records of births, deaths, marriages and divorces

* By Edwin W. Kopf.

as statements of fact essential to the protection of certain absolute and relative rights guaranteed by constitutions and other organic laws.

In quoting the case of State v. Norwell and other judicial comment on the constitutional aspects of vital statistics, there has been stated the principle that the registration of vital statistics is an essential to that reasonable care of the public health which is an inherent obligation upon sovereignty. A principle expressed several centuries prior to modern public health work and antecedent to the formation of modern constitutions should also be emphasized. It is broad enough to cover births, deaths, marriages and divorces. In the records of the General Court of the Massachusetts Bay Colony† (1639) we find this statement of the principle:

> Whereas many judgements have been given in our Courts, whereof no records are kept of the evidence and reasons whereupon the verdit and judgement did passe, the records whereof being duly entered and kept would be of good use for president to posterity, and a relief to such as shall have just cause to have their causes reheard and reviewed, it is therefore by this Court ordered and decreed that hence forward every judgement, *with all the evidence*, bee recorded in a booke, to be kept to posterity . . . that there bee records kept of all wills, administrations, and inventories, *as also of every marriage, birth and death of every person within this jurisdiction.*

Between 1639 and 1644 various details of administration were outlined in Massachusetts, all of them in the direction of providing records "of the evidence and reasons whereupon the verdit and judgement did passe." Further emphasis upon these records *as evidence* is shown by the following order:

> . . . that forwith there bee, by direction of the auditor general, a strong presse made of firme oake planks, with rabit joyntes one into another . . . to the end that all records, wills, births, letters, and other instruments which are of special and public concernment, may be safely preserved and improved for the good of present and succeeding ages.[13]

In furtherance of its obligation to protect rights, which would otherwise be jeopardized by the very lack of these authentic records, Massachusetts was the first political unit in the world which recorded the dates of the actual facts of births, deaths and marriages. Other jurisdictions had previously required records of baptisms, burials and weddings under canon or civil law, but it can be said that Massachusetts was first in establishing machinery for the protection of rights guaranteed by organic laws resembling constitutions when it imposed upon informed citizens the duty of giving notice to the government of all births, deaths and marriages occurring in the community.[14]

Similar observations could be made from the early Virginia records for 1631 and 1632, all of which would lead to the conclusion that perhaps a deeper foundation can be laid for a vital statistics law than has been asserted in judicial interpretation of the welfare and public health clauses of our state constitutions. This suggests that in the states formed comparatively recently, vital statistics statutes, with effective provisions, should have been enacted shortly after the constitutions, or organic bills of rights, were adopted. It also suggests that contemporary effort for speeding the completion of the registration area would be more effective if the chief law officers of the states, the judiciary, and members of the bar, were to take an active part in state campaigns. The legal profession has made very great progress during the past half century in having adopted by the various state legislatures, a number of acts uniform for the several states. The same effective group of scholars who succeeded in having the Uniform Negotiable Instruments Act adopted, can render invaluable aid in securing the adoption of the Model Bills

† Records of the Governor and Company of the Massachusetts Bay in New England, Boston, 1853, Vol. I, p. 270. *See also:* The Registration Laws in the Colonies of Massachusetts Bay and New Plymouth. Robert Rene Kuczynski. *American Statistical Assn. Quarterly*, September, 1900, p. 1.

for the Registration of Births and Deaths in states which now have no satisfactory law; they can assist through their professional associates in states having these laws, but with unsatisfactory registration, to secure the facilities for effective work. Furthermore, when the section on vital statistics assumes the interest in adequate registration of marriages and divorces, to which it is entitled by the force of legal history, the lawyers can aid materially in developing this phase of vital statistics work.

It is immaterial to students of vital statistics history, which agency of the state government has charge of the administration of the law. Birth and death registration can be allocated to the health department on the principle that such registration is essential to defense of the public health. The registration of births, deaths, marriages and divorces in one program can be justified only when the older principle set down by the General Courts of the Colonies is fully recognized and when the administrative agency is empowered on that principle.

Vital statistics law has its elements of substantive law, or general principles, which are expressed in constitutions, in parts of statutes, in the common law, and in judicial decisions. It has also certain elements of procedural law, the general and specific procedures nominated in statutes and evident in judicial machinery; it covers also the division known as administrative law, the rules, regulations, edicts and procedures established by the registration authority to carry into effect the more general provisions of substantive and procedural law.

The third part of this paper will deal with the phases of vital statistics having the attributes of administrative law.

III. ADMINISTRATIVE PHASES *

The state registrar of vital statistics is primarily an officer charged with the enforcement of an act of the legislature. His other duties depend on the successful carrying out of this function. The previous sections of this paper have discussed the constitutional and statutory basis of vital statistics law. It is the purpose of this portion to show that whether or not the law shall accomplish its purpose depends to a large degree on the legal actions of the administrative officer. All but 3 states have fairly adequate laws for securing registration of vital statistics, but 7 states still remain outside of the death registration area and 14 states outside the birth registration area.

The empowering statutes vary widely in the several states as to the amount of detailed procedure specified in the laws. For example, the vital statistics law of Mississippi is very short. It simply authorizes the State Board of Health to make the necessary rules and regulations to secure the registration of every birth and death occurring in the state. The law in Alabama and in the majority of the states specifies in considerable detail the procedures by which a birth or death is to be recorded.

The first administrative step, therefore, is for the state registrar or the governmental agency which he represents to promulgate a set of rules and regulations which cover procedures vital to the operation of the law, but not included among its specific provisions. The Standard Birth and Death Certificate should be adopted if the law does not so specify.

The legal necessity here is to see that all rules and regulations adopted are issued in strict accordance with rules of procedure outlined in the state for the adoption of such regulations. If publication is required, it is imperative that the state registrar see that the same is carried out.

It is usual for a bureau of vital statistics to issue a pamphlet of instructions to local registrars. These instructions should be very carefully written. The pamphlet is intended for advising the local registrars as to their duties as provided by law. If there are passages in the statute which are not clear in their meaning, the At-

* By W. Thurber Fales.

torney-General should be asked for opinion. It goes without saying that all instructions to local registrars, whether of procedure or of jurisdiction must be a reasonable interpretation of the statute, itself. If adopted and promulgated as regulations, these instructions have the power to make the law much more specific.

The efficient registrar will keep not only an accurate record of all rules and regulations issued in due form; but will keep a journal of all decisions and opinions, whether made by himself or rendered by the Attorney-General or the courts. The registrar should welcome review by the courts of such sections of the law that may be of doubtful legality. A record of these decisions forms an indispensable guide to future action. Such a record has been kept by the Division of Vital Statistics of the State Department of Health of New York since its reorganization in 1913. It now forms a most valuable record of the growth of the prestige and legal standing of this bureau.

We are apt to think of the empowering statute as the whole of the vital statistics law. It is in reality the acts and decisions of the state registrar, together with their review by the legal authorities, that put life into the law and make it an instrument capable of achieving its goal.

There are other legal phases of the administrative side of vital statistics registration. Some of these were covered very thoroughly by Dr. Hemenway[15] in a paper read before this section a few years ago. The state registrar must hold sacred his responsibility to see that the valuable records, with the preservation of which he is charged, remain inviolable. In his paper Dr. Hemenway has outlined the essentials of preserving the records as legal evidence. State registrars should be particularly careful in keeping the legal value of their records intact.

THE SIGNIFICANCE OF RECORDS

In closing, the authors of the present paper feel that the awakening of the public health profession to the legal importance and foundation of vital statistics will greatly aid the securing of more complete and more accurate returns of births, deaths, marriages and divorces. The state registrar must conceive of his profession not only as a collector and compiler of statistical returns, but also as the law enforcement officer who is charged with the duty of seeing that there is a legal record of every birth and death within his state, and in a growing number of states of marriages and divorces, which can be used in the protection of the civil and property rights of its citizenry. In many sections of the country neither the legal nor the medical profession has appreciated the legal significance of these records. They represent more than simply records *necessary for the securing of information for the prevention of disease.* They represent indeed, "The evidence and reasons whereupon the verdit and judgement did passe."

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6. West Hoboken Board of Health v. Duckett (1918), 92 N. J. L. 506, 105 Atl. 730.
7. People ex rel. Gage v. Siman (1917), 278 Ill. 256, 115 N. E. 817.
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9. Keiningham v. Blake (Md. 1919), 109 Atl. 65, 8 A. D. R. 1066.
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11. State v. Worden (1887), 56 Conn. 216, 14 Atl. 801, and see Tobey on Public Health Law.
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15. Hemenway, H. B. Birth and Death Certificates as Legal Evidence. *A. J. P. H.*, 11, 1:1 (Jan.), 1921.

SODIUM ALUMINATE AS AN ADJUNCT TO ALUM FOR THE COAGULATION OF PUBLIC WATER SUPPLIES

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THE PURIFICATION of public water supplies by rapid sand filtration has become so standardized in this country that little consideration is now given to other processes. Although the specific designs of such plants vary greatly, the basic principles of control of these installations are fundamentally the same. Since the use of a coagulant is an essential feature of rapid sand filtration, the functioning of the system depends largely upon the completeness of the chemical reactions prior to filtration. The control of these reactions is often troublesome, and constitutes the major difficulty in most water treatment plants. Aluminum sulphate has been employed as a coagulant much more extensively than other substances and there is no indication at the present time that other coagulants will replace completely this chemical.

Theoretically, the chemical reactions resulting when filter alum is applied to natural water are relatively simple. Actually, however, the process is complicated and, under many conditions, difficult to control. Until a few years ago, there was little accurate data published relating to this problem. This fact is confirmed by a review of the literature in the light of recent developments and from the experimental data that have been produced establishing basic principles of coagulation by means of alum and similar compounds. Credit is due to Wolman and Hannan,[1] who in 1921 directed attention forcibly to certain misconceptions of the theory of coagulation by means af aluminum compounds. The result of their work has been far reaching in the development of present knowledge relating to the chemical coagulation of water and indicating the cause or causes for many inefficient filter plant operations. Recently, the experimental studies on coagulation carried on by Miller, Theriault and Clark at the U. S. Public Health Service and by other investigators, have produced interesting data on this subject.

There is still much to be determined in reference to the physico-chemical properties of natural water supplies and their reaction when treated chemically. The treatment of water containing colloidal clays, certain organic compounds and other agents present baffling problems to many filter plant operators, and much work must still be done before the scientific chemical control of such water can be accomplished.

Considered from the viewpoint of coagulation only, all natural water may be classified into one of two groups. Either it coagulates easily, resulting in good flocculation with relatively low doses of chemical, or it resists coagulation, making efficient purification difficult. It is the latter type that will be considered in this paper, since it is this group of supplies which has been given special study, the results of which are presented herewith.

SODIUM ALUMINATE AND ALUM

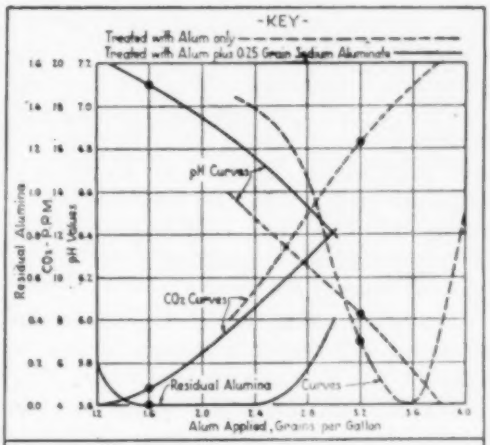
During the past year or two, sodium aluminate has been applied in conjunction with alum and in many instances the combination has proved exceptionally effec-

tive for the treatment of waters that resisted coagulation. Combination of these two aluminum salts has been shown also to possess marked advantage over straight alum treatment. Definite knowledge of the specific chemical reaction that results from such treatment is still lacking. The results obtained from this form of treatment have demonstrated, however, the desirability of the added chemical, for the acceleration of coagulation.

Sodium aluminate has been used to a limited extent for a number of years in this country and abroad as a coagulant and for water softening. Its use in water filtration as an adjunct to alum is of more recent origin. The earlier attempt to apply the material as a substitute for alum was not successful in many cases. The relatively high cost of the product over alum precluded also its use in the majority of installations. The application of the product merely as an accelerating medium has been much more successful, both from the results obtained and from the reduced cost resulting from such treatment in a number of plants. Sodium aluminate may be purchased either in liquid or dry form. The tests reported herein have been all run with liquid sodium aluminate.*

In Chart I are reported the results of tests with alum and the alum-aluminate treatment at a lake supply in Florida. The raw water is a highly colored soft water from a surface supply. This water carries only a small amount of suspended solids but has a high organic content, indicated by its high color. Good coagulation and color removal were not effected with alum until the dose was raised to 3.2 grains per gallon. The addition of lime or soda ash did not materially improve the water and good coagulation was not obtainable with a lesser dose of alum. The addition of only 0.25 grain of sodium aluminate together with 1.6 grains of alum caused rapid coagulation resulting in equally as good flocculation as when 3.2 grains of alum were employed. The free CO_2 content of the alum treated water was 16.0 p.p.m. while the alum-aluminate treated water contained 5.0 p.p.m. The hydrogen-ion content was

CHART I

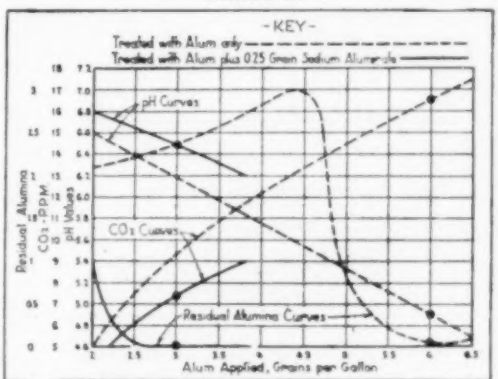


Curves showing the relation of pH, CO_2 and Residual Alumina with Alum and with Alum-Sodium Aluminate treatment of a highly colored soft water

6.0 and 7.1 respectively, as a result of these two treatments. The net saving in the cost of the chemical was approximately $1.68 per million gallons of water treated.

The reduction in the soluble aluminum salts in the filtered water affected by the combination treatment over the straight alum treatment is interesting. The relatively wide range in the hydrogen-ion concentration of the filtered water showing no residual aluminum in the alum-aluminate treated water signifies com-

CHART II



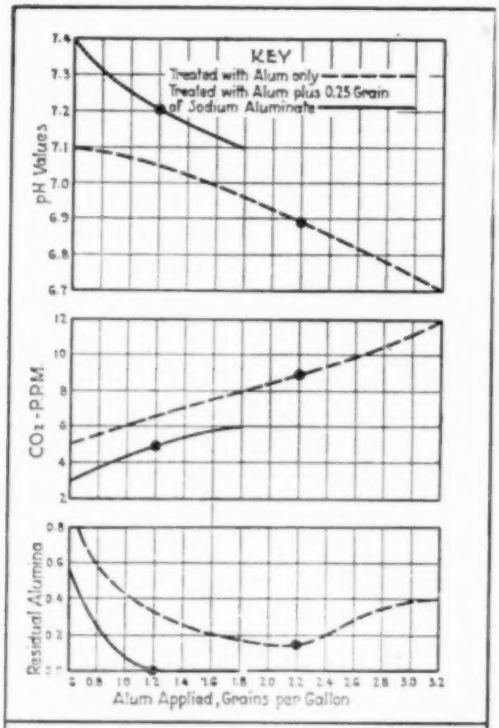
Curves showing the relation of pH, CO_2 and Residual Alumina with Alum and with Alum-Sodium Aluminate treatment of a highly colored soft water

pleted chemical reaction and is contrasted with similar conditions in the filtered water pretreated with alum only.

The results of the treatment of another supply in Florida containing high color and of low hardness are reported in Chart II. The results obtained by the combined treatment at this plant are comparable with those reported in Chart I. The interesting results of both tests are the wide range of excellent flocculation obtained by the combined alum-aluminate treatment with the resulting relatively low doses of alum and low CO_2 in the filtered water.

Tests conducted under similar conditions on a different water are shown in Chart III. This supply is a soft surface water in Virginia. The water is relatively high in organic matter. Satisfactory treatment was obtained by alum only with a dose of 2.2 grains of the coagulant per gallon of water. This treatment resulted in a free CO_2 content in the filtered water of 9.0 p.p.m. and a corresponding hydrogen-ion concentration of 6.9.

CHART III



Curves showing the relation of pH, CO_2 and Residual Alumina with Alum treatment compared to Alum-Sodium Aluminate treatment of a soft water containing organic coloring matter

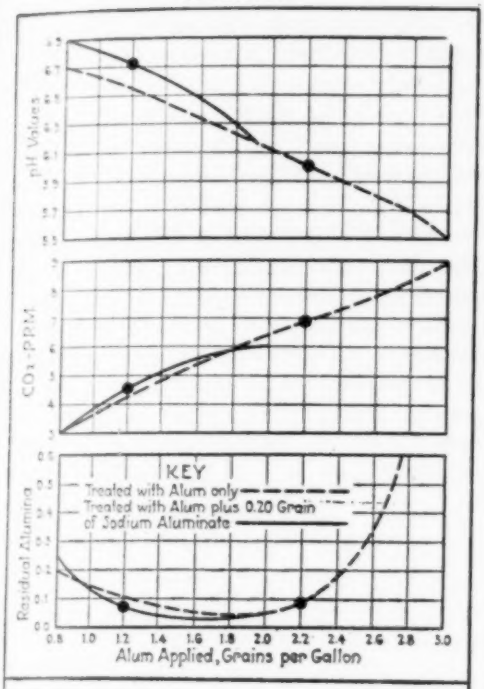
Equally good coagulation and clarification were obtained, however, by 1.2 grains per gallon of alum applied in conjunction with 0.25 grain of sodium aluminate. The filtered water with this treatment contained a free CO_2 content of 5.0 p.p.m. and the hydrogen-ion concentration was 7.2. Likewise, it should be noted that no residual alumina was present in the alum-aluminate treated water, while in the alum treated water without aluminate the soluble alum was 0.15 grains per gallon.

SIMILAR TESTS ON TWO OTHER WATER SUPPLIES

Two other groups of water are reported herewith, since they indicate the adaptability of the treatment to surface water supplies containing color and colloidal clay that exhibited some inhibiting effect to the coagulation of aluminum sulphate. In Chart IV are shown the results of tests made on a soft water in Maryland containing colloidal clay. It is a relatively corrosive water and at times resists coagulation greatly. At flood stages of the stream, it is a troublesome water to treat, due to excessively large amounts of suspended solids and to the presence of colloidal clay. It is extremely difficult to effect good coagulation with falling turbidities even with accurate and careful plant control.

The test made on this water indicated that at the present time better control is possible by the alum-aluminate method than by straight alum treatment, with a net saving in the cost of chemical of $1 per million gallons of water treated. The comparative test indicates the net reduction in alum by the addition of the sodium aluminate which amounts to 1.0 grain per gallon and effects a reduction of from 2 to 3 p.p.m. of free CO_2. There is slightly less soluble alumina in the treated

CHART IV


pH Values
CO₂ - P.P.M.
Residual Alumina
KEY
Treated with Alum only
Treated with Alum plus 0.20 Grain of Sodium Aluminate
0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0
Alum Applied, Grains per Gallon

Curves showing the relation of pH, CO_2 and Residual Alumina with Alum treatment compared to Alum-Sodium Aluminate treatment of water containing colloidal clay

water than in the water treated with alum only. It has been the practice at the plant to apply lime to the filtered water to inhibit the corrosive properties of the supply. Since using the alum-aluminate treatment, it has been possible to reduce the dose of alum, the filtered water is less acid, and less lime has been required to correct the hydrogen-ion concentration.

There are many highly colored waters in various parts of the country that are particularly well adapted to this process. Such waters require invariably large doses of coagulant. Lime and soda ash are employed at times to assist decolorization of such supplies, but there is no assurance that high color removal can be attained at all times. In Chart V is reported the reduction in the dose of alum required to produce a color of 5.0 p.p.m. in the treated water by the addition of sodium aluminate. When no sodium aluminate was added to the water, 7.0 grains of alum were required to reduce the color of the filtered water to 5 p.p.m., but the same results were obtained with 5.0 grains of alum when 0.10 grain of sodium aluminate was applied. The net saving in the cost of the coagulant (see Chart VI) by the combined treatment in comparison with straight alum treatment was $2.50 per m.g. of water treated.

The economy resulting from combined treatment is very marked in a number of plants where sodium aluminate has been employed. The saving in coagulant cost alone has amounted to from $.40 to $4.70 per million gallons of water treated. There are a number of intangible items that in an economic survey should be credited to the treatment. These include longer filter runs, reduced lime doses to the filtered water to inhibit corrosion where such treatment is necessary, better basin efficiency and numerous other factors.

The average saving effected at four plants is shown in Chart VII. These figures are based upon an alum cost of $30 per ton and the sodium aluminate at $.05 per pound. Both costs are considered as delivered at the filter plant. These figures will vary with the location of the plant, the annual consumption of chemicals and other fluctuating conditions.

CHART V

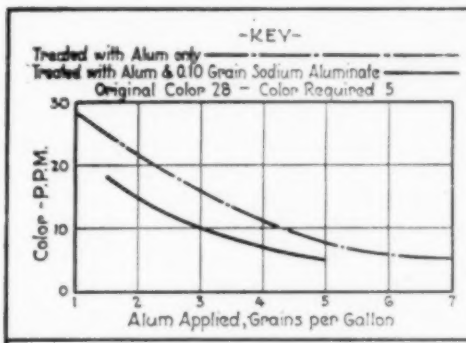


Chart showing amount of coagulant required to produce a residual color of 5 P.P.M. in water when treated with Alum compared to treatment with Alum-Sodium Aluminate.

CHART VI

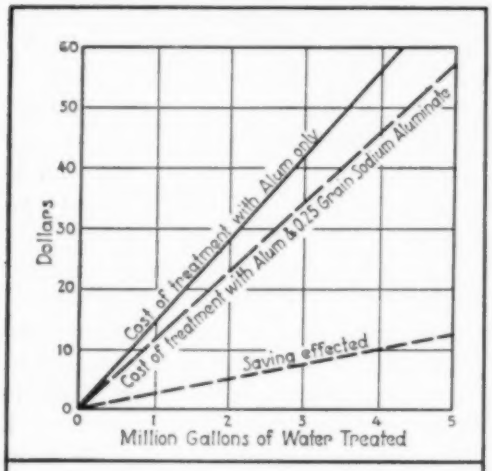


Chart showing saving in the cost of coagulant due to the addition of Sodium Aluminate with Alum to reduce the color of water from 28 to 5 P.P.M.

A number of theories have been advanced to account for the unusual properties of sodium aluminate in accelerating chemical reactions and producing more rapid agglomeration, thereby effecting better subsidence and efficient filtration.

Definite scientific knowledge is still lacking to account for these results. It has been fairly established, however, that the liquid sodium aluminate employed in these tests is a colloidal solution. The apparent advantage of the alum-aluminate treatment is the removal of mineral or organic colloids by the alkaline sodium aluminate effecting rapid agglomeration of these substances by the aluminum sulphate. Research studies to determine the exact conditions effecting these results are now under way. The alkaline sodium aluminate employed in these tests possesses unusual properties and similar coagulating results have not been diplicated by combinations of soda ash or other alkalies with aluminum sulphate, a condition that might be expected if it were merely the result of the adjustment of the hydrogen-ion concentration.

From a review of the results obtained at a number of plants where the alum-aluminate treatment has been installed, it is indicated that the treatment is far superior to straight alum or alum applied in conjunction with alkaline salts. Where the dose of alum is low, the cost of the treatment may not be justified if considered only by the increased cost of the chemical. In making a study of the process, the improved quality of the water should also be considered. The process is particularly well adapted to soft highly colored waters that require high doses of alum to effect efficient decolorization. Such supplies after treatment are generally corrosive as a result of the high CO_2 content of the treated water. Reduction in alum doses of from 50 to 75 per cent

CHART VII

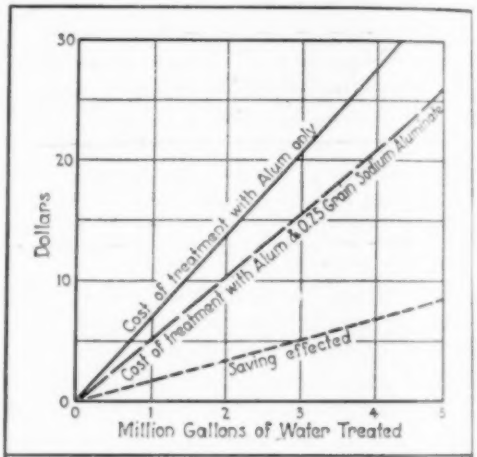


Chart showing average saving in the cost of coagulant due to the addition of Sodium Aluminate with Alum. Average is from four waters.

or higher are possible by the addition of relatively small amounts of the alkaline sodium aluminate liquor. It is indicated that 0.30 grain of sodium aluminate is the maximum dose required with the majority of supplies and in most cases lower doses are effective in producing desired results.

Water high in colloidal clay reacts in a similar manner to highly colored water in respect to this treatment, since many of the difficulties in rapid sand filter control are caused by colloidal clay interference.

The alum-aluminate process may be adapted to advantage in many plants where such problems are encountered.

There are some waters where the combination of sodium aluminate and alum does not show enough marked improvement over straight alum treatment to warrant its use. Just why this condition should exist is not known. Coagulation can be obtained but there is no apparent saving to justify the combined treatment.

The specific value of the treatment may be summarized as follows:

1. Possible net saving is effected in plant operation due to reduction in alum doses and to better plant control.

2. The filtered water is less corrosive due to the lower free CO_2 content.

3. Better flocculation in cold water.

4. Better agglomeration and more rapid subsidence of the coagulated material.

5. Less residual alumina in the filtered water.

6. Higher pH values in the filtered water, thereby requiring less lime or soda to raise the reaction to the desired pH for the inhibition of corrosion.

7. Possible reduction in subsidence capacities of coagulation and settling basins and reduced mixing periods.

8. Longer run between cleaning of filters and reduced wash water as a result of the more efficient coagulation and settling.

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CONFERENCE ON COST OF MEDICAL CARE

AT THE conference on the Cost of Medical Care held in Washington, May 17 last, mentioned editorially in the July issue of the JOURNAL, five members of a committee were selected with authority to increase their number to approximately eighteen. Since the conference, the new committee has met, elected officers and added fifteen new members.

The composition of the committee at present is as follows: Ray Lyman Wilbur, Chairman; C.-E. A. Winslow, Vice-Chairman; Lewellys F. Barker; J. J. Carty; William Darrach; Michael M. Davis; Haven Emerson; Walton H. Hamilton; J. Shelton Horsley; W. S. Rankin; Richard M. Smith; Edgar Sydenstricker; Matthew Woll; Rollin T. Woodyatt; Winford H. Smith; W. Irving Clark; Mrs. W. K. Draper; William T. Foster; Wesley C. Mitchell; W. S. Thayer. All except the last five have already accepted appointment.

An executive committee of seven or nine members is to meet monthly. Four of these members have already been appointed and have been given authority to increase their number. The present composition of the Executive Committee is as follows: C.-E. A. Winslow, Chairman; Michael M. Davis, Haven Emerson, and J. Shelton Horsley.

An annual budget of $40,000 has been adopted. Of this amount a grant of $10,000 has been made by the Twentieth Century Fund, subject to conditions which it is hoped may be met. Since the conference, a grant of $15,000 has been received from the Milbank Memorial Fund.

The temporary office of the committee is at 1724 I (Eye) Street, Washington, D. C.

The committee is to serve for a period of 5 years with the following functions:

1. To conduct an analysis of the problem of medical organization, particularly of its economic factors.

2. To plan a series of researches on the basis of the proposed analysis, utilizing, as the committee may see fit, the outline of studies prepared by the Committee of Five appointed at a preliminary conference held in Washington on April 1, 1926. These studies are to be assigned to interested agencies and individuals, and they will be subsidized only when they cannot be properly undertaken without financial aid.

3. To conduct a limited number of studies when it becomes evident that they cannot be handled adequately by any existing agency.

4. To arouse the interest of professional groups and the public in the facts regarding medical service as they become available, particularly in the results of the committee's studies. The committee will promote discussion by medical, public health and economic agencies, arrange or encourage addresses before organizations of the "consuming public" and conduct various kinds of conferences. The publication of articles in professional and popular journals will be provided, and reports on the committee's researches be issued.

PUBLIC HEALTH WORK IN THE FLOOD AREA

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HEALTH PROBLEMS of tremendous proportions arose with the devastating flood which Secretary Hoover appropriately termed the greatest peacetime calamity in United States history. This situation was early recognized by the able Medical Director of the American Red Cross, Dr. W. R. Redden, who called together an advisory committee composed of leaders in public health and medical fields. At the first health conference, April 28, which included among others the health officers of the states directly affected by the flood, the Red Cross Medical Service was made the clearing house for all offers of, and requests for personnel and material. This step led to the development of a most impressive, coördinated emergency health campaign destined to produce far-reaching results.

Directly following this first conference, federal and state health officials in several states outside the flood area were advised by wire from Red Cross headquarters at Memphis of the urgent need for experienced health officers, epidemiologists and sanitary engineers. The enormous demand for biologic supplies, to prevent possible epidemics which threaten in disasters of this kind, was likewise indicated. The immediate response to this message was most gratifying and emphasized the generous spirit of service and coöperation which binds together our health organizations throughout the country. "I will strip the Service to meet your needs," said Surgeon General Cumming, and this reply illustrates the tone of messages received from many state health officers.

This brief account must be confined largely to the experiences of one who worked under the State Board of Health of Arkansas during the month of May. The information concerning activities in the flood area as a whole has been furnished through the courtesy of the Medical Director of the Red Cross. Upon arrival at the Memphis headquarters, our group, then drawn from Connecticut, North Carolina, Ohio, Virginia, the Rockefeller Foundation, and the U. S. Public Health Service, was immediately assigned to Arkansas at the request of the State Health Officer. Representatives from other states, such as South Carolina, Georgia and Alabama, later strengthened the forces.

Before leaving Memphis, the general plans of the coördinated program were outlined to the group by the Medical Director of the Red Cross, and his associate from the U. S. Public Health Service, Senior Surgeon John McMullen. Each officer also received typhoid inoculation and smallpox vaccination. Through the courtesy of Dr. J. J. Durrett, health officer of Memphis, opportunity was given to visit the exceedingly well organized refugee camp on the fair grounds. This visit served as a preliminary lesson in refugee camp management, although it was at once apparent that the modern facilities of this camp would be difficult to duplicate under the conditions soon to be met. For here the conveniences of a city water supply, sewerage system, cen-

tral mess halls, spacious buildings and recreation fields all contributed to the comforts of the refugees.

EXTENT OF PROBLEM

The trip to Little Rock by rail was an introduction to the magnitude of the problems ahead. Water still covered the railroad tracks for a half mile, and, for three hours of the journey, extended from the tracks on either side as far as one could see. The huge expanse of water was dotted by the tops of trees, telephone poles, house tops, boats of various descriptions, and floating objects. Here and there a raft or floating bridge bore a load of unfortunate people, their animals, or other possessions. The few villages left partially or entirely out of water were concentration centers, and the railroad stations resembled in many respects conditions in 1917–18.

The territory of the flood area covered at least 200,000 square miles, and many counties were entirely covered with water. In Arkansas alone, it was estimated that 4,000,000 acres were covered on May 18. Fifteen feet of water filled the streets of some of the towns; many houses in the districts were destroyed or washed away, while in other cases the water reached the second story. It should be remembered that a score of rivers besides the Mississippi contributed to the problem.

ARKANSAS PROGRAM

As an example of how the work was carried on, the Arkansas program may be briefly outlined:

A conference at the State Health Department resulted in the formulation of a program for guidance in the field, and each health administrator was assigned to a district in the flood area consisting of from two to five counties. Each district representative was equipped with emergency medical supplies, in addition to a complete outfit for typhoid inoculation work, chlorinating tablets, Sterno, rubber boots, and sufficient typhoid and smallpox vaccine for 1,000 persons. The engineers were likewise appropriately equipped. District headquarters were immediately established, being reached by rail, by boat, or by aeroplane. Through the telephone and telegraph offices, as close contact as possible was maintained with the state headquarters, while supplies of vaccine, etc., were promptly delivered by aeroplanes of the Army or Navy, or by the railroads.

The comprehensive state sanitation program, as developed under the efficient direction of Dr. C. W. Garrison, State Health Officer, involved coöperation with national, state and local health agencies. Local officials, physicians, and Red Cross committees, and various civic clubs participated generously, while the press assisted in the general educational work. Thousands of families were quartered in concentration camps, in tents supplied by the Army, while others lived in box cars.

IMMUNIZATION WORK

The emergency program included a drive against three diseases—typhoid fever, summer diarrhea, and malaria. Measures were immediately taken to organize the counties through the county judges, county and local health officers and physicians, to provide for the free immunization of as many people as possible against typhoid fever, as well as for giving smallpox vaccinations. In certain districts, Army medical officers aided materially in the immunization campaign, but the major part of this work was done by local physicians on a volunteer basis. Immunizing teams were frequently formed consisting of one or two physicians, a nurse, volunteers to register persons immunized, and a boy scout to sterilize needles and syringes. Immunizing clinics were established in camps, in stores, in doctors' offices, and in other convenient places.

SANITARY MEASURES

A campaign was early inaugurated for the safeguarding of water supplies by re-

establishing city supplies, by disinfecting wells, by providing emergency tank supplies properly chlorinated, and by educational methods regarding the boiling of water not otherwise treated. Another important problem was the proper disposal of human wastes, dead animals (15,000 in Arkansas, 45,000 in Mississippi), and other refuse. Army sanitation methods were widely employed. Special measures were directed to prevent summer diarrhea of infants through educational drives for the boiling of water and milk, and the prevention of fly breeding. As the waters receded, clean-up campaigns were instituted. Measures for mosquito control were then organized under the able direction of J. A. LePrince of the U. S. Public Health Service. This campaign, extending over the entire flood area, involved the screening of homes, the swatting of mosquitoes early in the morning, and the ditching, draining and oiling of stagnant pools to prevent breeding.

CARE OF THE SICK

For the care of acute sickness, hospitals already established were utilized as widely as possible. In connection with the concentration camps, however, it was necessary to hold regular sick calls and to establish emergency hospitals in certain instances, particularly to facilitate the isolation of communicable disease cases. Special medical and nursing care was given to maternity cases.

RESCUE AND REHABILITATION

It seems appropriate to emphasize the contributions made to the rescue, relief, and rehabilitation work by many different agencies. Thousands of tents, cots and blankets were supplied by the Army, while the Army and Navy aviation service aided greatly in the work of rescue, in surveys of conditions, and in transportation. Navy boats, as well as those of the Mississippi River were indispensable. The efficient work of the personnel of the Army, Navy, and other governmental agencies is too well known to need comment. The railroads likewise served the people in many different capacities, their contributions amounting in terms of money to several millions of dollars. Not only did the railroads supply thousands of box cars as temporary homes, but they transported the refugees without charge, as well as Red Cross and medical supplies. The railroads likewise coöperated through their medical service, in the educational work connected with typhoid inoculation, smallpox vaccination, and malaria prophylaxis. Educational circulars and posters of boards of health and insurance companies, as well as press articles, were liberally provided.

GENERAL SUMMARY OF TASK AND SERVICES GIVEN

A brief summary of accomplishments in the flood area up to the last of June may serve to illustrate the stupendous task met by health and medical workers in the field. The coördinated emergency program of the Red Cross embraced medical, nursing, and sanitary service. Throughout the refugee camp period, 600,000 people were given complete care. Then followed a 30-day clean-up period, with return of the refugees to their homes, with free rations and medical service for 2 weeks. During 9 weeks, as a result of the coördinated program developed with state and federal health officials, county medical societies, and health departments from 14 states outside the flood area, 560,000 people were completely immunized against typhoid fever, and 161,000 against smallpox. There have been no epidemics and the incidence of disease has been less than that normally expected in an ordinary group.

The Red Cross employed 100 physicians (in addition to 200 donating their services), and 35 health officers and sanitarians, in addition to 80 donated by various states to the Red Cross, which paid expenses. About 30 specialists have been supplied by the U. S. Public Health Service. One hundred and fifty-eight Red

Cross public health nurses have given valuable service under Elizabeth Fox, R.N., and Malinde Havey, R.N., directors of the Red Cross Public Health Nursing Service.

Two tons of quinine for malaria prophylaxis, 200,000 gallons of spray oil for mosquito control, and 100,000 pounds of chloride of lime for disinfection purposes have been supplied. A program is under way for the complete screening of 15,000 malaria cases under the direction of Mr. LePrince. The entire program above outlined by the Red Cross cost one-half million dollars. Surely these facts indicate strikingly the greatest coöperative effort ever made in the health field between official health groups and a volunteer relief agency.

PERMANENT HEALTH UNITS IN FLOOD AREA

The question is frequently raised concerning the future of public health work in the affected areas. As a result of the emergency health campaign, operating through and with local agencies, thousands of people have been protected against typhoid and smallpox, and have been instructed in sanitary measures. Sanitary codes have been strengthened and model privy ordinances have been adopted. Unusual interest has been stimulated in the values of public health work. The response has been most gratifying.

There is enormous need, however, of continuing the general public health work in the flooded areas. During the emergency period the state health officers and the district health representatives constantly gave consideration to the possibilities of future programs of more or less permanent nature. It is therefore highly gratifying to receive word that a plan is now under way for the development of permanent health units which will put the Mississippi Valley years ahead, and will guarantee greatest protection.

The health program inaugurated by the Red Cross unquestionably stimulated the desire for health units in the counties flooded. A joint program of the U. S. Public Health Service, the states and counties affected, and the Rockefeller Foundation has recently been developed to provide full-time county health units throughout the flood area. The significance of this step is at once apparent. With the perfection of this plan, and with the confidence of the local districts in their state health departments already firmly established, remarkable progress in full-time county health administration may be anticipated in the near future.

"PUBLIC HEALTH AT THE CROSSROADS" WINS A HARMON-SURVEY AWARD

THE Harmon-Survey award for 1926 to the author of the article appearing in 1926 in any American periodical or newspaper, which, in the opinion of the jury, makes the most distinctive contribution of the year to social or industrial welfare in the United States, has been announced. To Professor William Z. Ripley of Cambridge, Mass., was given $500 and medal for his article "From Main Street to Wall Street" in the *Atlantic Monthly* of January, 1926.

To Professor C.-E. A. Winslow of Yale University was given honorable mention and a medal for his article, "Public Health At the Crossroads" in the AMERICAN JOURNAL OF PUBLIC HEALTH of November, 1926.

Professor Winslow's article was his presidential address at the Annual Meeting of the A.P.H.A. at Buffalo in October, 1926.

The jury was composed of Samuel McCune Lindsay, chairman, professor social legislation, Columbia University; William Allen White, editor, *Emporia Gazette;* John A. Fitch, member of faculty, New York School of Social Work; Vernon Kellogg, chairman, Division of Educational Relations, National Research Council, Washington, D. C.; Chester H. Rowell, former editor and publisher, *Fresno Republican.*

Ethel Richardson of Los Angeles, Calif., was given $1,000 and a medal for her work in adult education as assistant superintendent of state public instruction.

AGGLUTININS IN HUMAN SERA FOR SCARLET FEVER STREPTOCOCCI

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AN ASSOCIATION of hemolytic streptococci and scarlet fever has long been noted. Recently, Dick and Dick,[1] Tunnicliff,[2, 3, 4] Bliss,[5, 6] Gordon,[7] Dochez,[8] and others seem finally to have established a hemolytic streptococcus as the etiological factor of the disease.

Agglutination reactions have been widely studied with varying degrees of success since Marmorek[9] first produced an anti-streptococcal serum. A review of the numerous investigations since that time seems unnecessary after the very adequate ones in papers like those of Tunnicliff[2] and Dochez.[10]

It was the object of the experiments described in the following pages to investigate the presence of agglutinins for scarlet fever streptococci in the sera from an average group of healthy individuals. The following points were taken into consideration, tentatively accepting the etiological rôle of the hemolytic streptococci in scarlet fever as a working hypothesis:

1. The presence or absence of specific agglutinins for scarlet fever streptococci in human serum—Agglutinins found in the sera of individuals who have not had scarlet fever would be called hypothetical normal agglutinins, keeping in mind that with the widespread occurrence of all streptococcus infections, normal agglutinins are difficult to differentiate.

2. The degree of agglutination found in tests.

3. The dilution in which maximum agglutination is found.

4. Specificity of agglutinins found as evidenced by the ability of all sera tested to agglutinate streptococci of non-scarlatinal origin.

In addition, a correlation of a history of tonsillitis and the presence or absence of agglutinins could be considered if a complete disease history of the individual tested was secured.

METHOD

Streptococci were grown at 37° C. in 50 c.c. hard glass test tubes containing meat infusion broth with 1 per cent. peptone, 0.1 per cent dextrose, no NaCl, and adjusted to a pH of 7.6 before the last sterilization. As a buffer thoroughly washed pieces of crystalline $CaCO_3$ were added before the final sterilization. Eighteen to 20 hour old whole broth cultures that had been exposed to 55° C. for 1 hour were used in all agglutination tests. Polyvalent antigens were prepared by mixing equal volumes of killed broth cultures. The two scarlet fever strains used gave positive Dick tests in susceptible individuals. A strain from a case of peritonitis, another from a case of blood poisoning, and a third from a carcinoma of the larynx were combined to make an antigen of hemolytic streptococci of non-scarlatinal origin.

Individuals to be tested were bled for about seven-tenths of a cubic centimeter from finger punctures, the blood being drawn up into a capillary pipette and put into individual small glass tubes. After 20–24 hours in the icebox the clear serum was drawn off.

Dilutions of the sera were made in plain extract broth pH 7.4). Five-tenths c.c. of serum dilution and five-tenths cubic centimeter of bacterial suspension were put into hemolytic tubes (10 cm. x 0.8 cm.) and incubated at 55° C. for 1 hour

Readings were taken immediately and at the end of 24 hours in the icebox. Unless definite clumping could be observed, the tube was read as a negative. All doubtful positives were counted as negative in calculations.

Negative controls were run with every 8 tubes set up. Agglutinating titre of 1–3200 was built up in young rabbits by successive intravenous injections of killed cultures. This immune sera or a human sera which caused agglutination of the organisms was used for positive controls with every set of tubes.

RESULTS

Agglutination tests were run on 188 college students. The sera from 54 individuals or 28.6 per cent of the group agglutinated scarlet fever streptococci. One hundred and thirty-four, or 71.4 per cent, showed no sign of agglutination.

In relation to a previous history of the disease Table I is given.

TABLE I

PERSONAL HISTORY OF SCARLET FEVER IN INDIVIDUAL COMPARED WITH THE RESULTS OF THE AGGLUTINATION TEST

	With History of Scarlet Fever		With No History of Scarlet Fever	
Agglutination	Number of Individuals	Per cent of Group	Number of Individuals	Per cent of Group
Positive	15	33.3	39	27.2
Negative	30	66.7	104	72.8

POSITIVE AGGLUTINATION TESTS

Further study of the individuals whose serum agglutinated the scarlet fever streptococci is most interesting. At first glance the percentage of positive agglutination tests coming from individuals of no history of scarlet fever, 27.2 per cent, seems very high when compared to that from individuals with a positive scarlet fever history, 33.3 per cent. The former would be the percentage of individuals having hypothetical normal agglutinins. In the literature we find almost no record of normal agglutinins to streptococci, though normal agglutinins to other forms have long been observed. For this reason a closer study was made of this group.

I. RELATION OF AGGLUTINATING TITRES TO HISTORIES

Careful examination was made of the slightly positive reactions. Recalculating the percentages of positive agglutination, tests from positive and negative histories of scarlet fever according to the degree of the agglutination reaction gave the results shown in Table II.

DISCUSSION OF TABLE II

Referring to Table II it will be seen that at least 2 per cent of the individuals who had no personal history of scarlet fever were found to have definite agglutinating bodies in their blood. The more marked difference between individuals who had had the disease and those who had not, when only the three and four plus readings were considered, is significant. In view of the few instances in which normal agglutinins have been noted for streptococci, the results in Table II would seem to be of interest. Normal agglutinins to scarlet fever streptococci were first indicated by Moser and von Pirquet.[11] Convalescent serum was found by Bliss[6] to agglutinate specific streptococci if taken after the 18th day. Herrold and Tunnicliff,[12] by concentrating the sera, secured more positive results, for 25 per cent of the sera they collected before the 11th day and 92 per cent of the sera collected after the 18th day agglutinated scarlet fever streptococci but not streptococci from other sources. Normal agglutinins to other streptococci were noted by Rosenow and Gray[13] for

TABLE II

PERCENTAGES OF INDIVIDUALS WITH POSITIVE AND NEGATIVE SCARLET FEVER HISTORIES HAVING VARIOUS DEGREES OF AGGLUTINATION

	Agglutination Tests			
	All Reactions	++, +++, and ++++ Reactions	+++ and ++++ Reactions	++++ Reactions
Personal scarlet fever history.....	33.3	22.2	17.8	11.2
No personal scarlet fever history...	27.2	18.2	8.2	2.0

pleomorphic streptococci from epidemic poliomyelitis and by Sherwood and Downs[14] for *S. salivarius* and *S. mitus*.

II. DILUTION IN WHICH THE GREATEST DEGREE OF AGGLUTINATION TOOK PLACE

Table III shows a comparison of the maximum agglutination in a given titration to the dilution in which it occurs, expressed in the percentage of the 54 cases in which positive agglutination was found.

III. COMPARISON BASED ON THE NUMBER OF YEARS SINCE INDIVIDUAL HAD SCARLET FEVER

Table IV is a tabulation of the results from 41 individuals comparing the number of years since they had had scarlet fever with the presence of agglutinating antibodies in their blood.

TABLE III

COMPARISON OF MAXIMUM DEGREE OF AGGLUTINATION AND DILUTION IN WHICH IT APPEARS

Dilution	Result of Agglutination				
	Counting All Reactions	Maximum Agglutination in a Given Titration			
		+	++	+++	++++
1– 20	10%	6%	4%	0%	0%
1– 40	30%	14%	8%	6%	2%
1– 80	42%	12%	8%	18%	4%
1–160	18%	4%	14%	0%	0%

TABLE IV

PERCENTAGES OF POSITIVE AND NEGATIVE AGGLUTINATIONS COMPARED WITH THE NUMBER OF YEARS SINCE THE INDIVIDUAL HAD SCARLET FEVER

Classification	Average No. of years since the disease	No. of Years Since Individual Had Scarlet Fever					
		1–5	5–10	10–15	15–20	20–25	25–30
Of All Individuals	12	12.1%	34%	27.3%	7.2%	17.0%	2.4%
Individuals whose serum gave positive agglutination	10.8	14.3%	42.9%	28.6%	7.1%	7.1%	0.0%
Individuals whose serum gave negative agglutination	13.3	11.1%	29.6%	26.0%	7.4%	22.2%	3.7%

DISCUSSION OF TABLE III

A study of Table III shows that the 1–80 dilution exhibits the greatest degree of agglutination. In 82 per cent of all the cases agglutination was lost by the time the final concentration of the serum was 1–160. Few workers have demonstrated the agglutinins they have found for streptococci in high dilutions. Weaver[13] stated that scarlatinal serum agglutinated the organisms he isolated from scarlet fever cases in a dilution of 1–4000. His work was done before any differentiation of streptococci was made and so his organisms may not all be hemolytic streptococci. No agglutination was demonstrated by Herrold and Tunnicliff[12] by unconcentrated scarlet fever serum of 1–10 dilution and not by concentrated scarlet fever in dilutions higher than 1–20 and 1–40. Rosenow and Gray[13] with streptococci from epidemic poliomyelitis and Sherwood and Downs[14] with pleomorphic streptococci found normal agglutinins in dilutions as high as 1–100.

DISCUSSION OF TABLE IV

It will be seen that the majority of people in this group had the disease from 5 to 10 years ago. It is this group which had the greatest percentage of agglutinins. The very marked decline in the presence of antibodies after the 15th year following the disease is to be noted. Herrold and Tunnicliff[12] found that serum from one person who had had scarlet fever 2 years previously did not agglutinate scarlet fever streptococci. This seems to be the only reference to such work in the literature.

IV. A RELATION OF A HISTORY OF TONSILLITIS TO THE PRESENCE OF AGGLUTININS IN HUMAN SERUM

Eighteen out of 39 individuals of a negative scarlet fever history but whose blood was found to have some agglutinins for scarlet fever (see Table I) reported tonsillectomies and a history of tonsillitis. However, the sera from these individuals

showed no tendency to agglutinate the three strains of hemolytic streptococci of non-scarlatinal origin.

NEGATIVE AGGLUTINATION TESTS

The following points are of interest when a study is made of the histories of the 134 individuals who had no agglutinins for scarlet fever streptococci in their serum.

Of the 30 individuals showing negative agglutination reactions but who had had scarlet fever, only 5, or 17 per cent, stated that the disease occurred in anything but mild form. The 25, or 83 per cent, described mild attacks, usually without complications.

Of the 104 persons whose sera did not agglutinate the scarlet fever streptococci and who gave histories of not having had scarlet fever, 15 individuals or 15 per cent had had some definite contact with the disease.

AGGLUTINATION OF STREPTOCOCCI OF NON-SCARLATINAL ORIGIN BY HUMAN SERUM

Out of the 188 individuals 157 were tested to discover if their serum would agglutinate the three strains of hemolytic streptococci of non-scarlatinal origin. Only one serum agglutinated the non-scarlatinal streptococci. This same serum did not agglutinate streptococci from scarlet fever.

SUMMARY AND CONCLUSIONS

Agglutinins for streptococci isolated from acute cases of scarlet fever are found in the blood of apparently healthy and normal individuals.

Of the 71.4 per cent whose sera did not agglutinate the scarlet fever streptococci, 77.6 per cent had not had the disease.

Of the sera from 188 individuals 28.6 per cent agglutinated scarlet fever streptococci. Twenty-nine and six-tenths per cent of the positive agglutinating sera came from individuals who had had scarlet fever previously.

Of the individuals who had had scarlet fever 33.3 per cent had agglutinating bodies for scarlet fever streptococci in their blood.

Counting only 3 and 4 plus agglutination reactions, 8.2 per cent, and counting only 4 plus reactions, 2.0 per cent, of the individuals whose sera agglutinated the scarlet fever streptococci had not had scarlet fever. Fifty per cent of this group had a history of tonsillitis and tonsillectomies.

Maximum agglutination occurred in the serum dilution 1–80.

Agglutination seemed to be specific if judged by the results of agglutination tests with three strains of streptococci of non-scarlatinal origin.

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Inter-State Post Graduate Assembly—Dr. G. W. Crile, Chairman of the Program Committee of the Inter-State Post Graduate Assembly of North America has issued a very interesting program of the meeting to be held in Kansas City, October 17–20. In addition to the many sessions held on these days, there will be assembly clinics on October 14 and 15.

Congress of Medicine in Paris—The French Ambassador to the United States, through the State Department, has requested that the Public Health Service invite the attention of the academies, faculties and associations of medicine in the United States to the fact that the Nineteenth Congress of Medicine will be held in Paris, in October next.

STEREOSCOPIC X-RAY EXAMINATION OF SANDSTONE QUARRY WORKERS*

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NO INVESTIGATION of the incidence of silicosis has thus far been made in the state of Ohio, which is one of the chief quarrying centers as well as one of the busiest centers of metal elaboration, using siliceous abrasives, in the world. It is true that the vast part of the quarrying industry is associated with limestone. The metal industries have the usual amount of grinding, polishing and buffing in which siliceous compounds largely enter. The present study, however, is confined to an X-ray investigation in a chief center of the sandstone industry in the state.

Most authorities have agreed that the diagnosis of silicosis hinges principally upon radiographic chest findings. Thus Steuart,[1] who has examined over 200,000 radiographs of 57,000 employes in the mines of South Afrrica (about 90 per cent silica) states that the examination of the thorax holds a high place in the general summation of a mine worker's condition, while Pancoast [2] states, "It is generally conceded that a properly conducted roentgen-ray examination is the most satisfactory and usually the most accurate means of studying the effects of dust upon the lungs of the living subject. A clinical study is also essential, especially in determining the capacity of the individual for work and the presence of a coincident tuberculosis."

In the rather extensive literature which has accumulated upon the subject of silicosis,[3] comparatively few studies of upground workers such as those in the quarrying industries have been made. The earliest reports in modern times are undoubtedly those from Great Britain in connection with the manufacture of ganister bricks (98 per cent free silica) in England.[4] More recently the relations of the abrasive industry to silicosis have been recognized and included in a special Act on the part of the English Government [5] for workers employed in materials having more than 84 per cent of free silica.

The principal studies of silicosis in this country have been those associated with the zinc and lead mining operations in the Joplin, Missouri, district by Lanza and coworkers,[6] where a silica content of 98–99.4 per cent was found; those in the metal mines of Montana and northwestern states with a silica content of 61.5–78.9 per cent, by Sayers and Harrington,[7] and especially that by Jarvis and coworkers [8] in the granite industry of Barre, Vermont, which rock has an average content of 69.89 per cent silica. The latter study is the one most comparable to the present one since it also concerns upground workers exclusively, many of whom, like ours, were not out of doors, however, but within sheds and other enclosures.

Jarvis's study as reported by Hoffman,[9] which covered 13 months in 1920–21, included stereoradiographic findings of 475

* A preliminary report on 919 sandstone quarry workers, presented to the Industrial Hygiene Section of the American Public Health Association at the Fifty-fifth Annual Meeting at Buffalo, N. Y., October 13, 1926.

granite cutters of an original number of 1,085 employes surveyed. Unfortunately the investigation was made while a prolonged strike was in progress, and only men were physically examined who came to a series of clinics arranged after working hours and on Sundays. Thus over half of the workmen were not included in the X-ray studies, while physical findings were made of only one-fourth of the original 1,085 men. Nevertheless the 475 men whose stereoradiograms were obtained constitute an unusually large number, and were among the earliest of stereoradiograms of workers.

One of the tables in connection with this study (Hoffman's report, page 156) shows that there were diagnosed the following: "Clinical tuberculosis (tubercular bacilli in the sputum), 26; tuberculosis, definite, by X-ray interpretation, 31; tuberculosis, inspected by X-ray interpretation, 56; tuberculosis, infection (healed calcified tubercles), 35; silicosis uncomplicated, 157; silicosis, suspected, uncomplicated, 26; unsatisfactory films, 69; normal chests, 27." These figures are correlated by Hoffman with the unprecedented mortality from tuberculosis as discovered in the death records of that vicinity, viz., 1056.7 per 100,000 during 1915–1918 (exclusive of the last three months of 1918) as against the pulmonary tuberculosis death rate of adult males of the neighboring state of Massachusetts of 203.2 per 100,000 during the same period. This tuberculosis incidence in both X-ray findings and in mortality statistics is higher than that reported for any other industrial situation, including even the underground workers in the metal mining industry.

A recent study by D. G. Robertson [10] of mine employes in Western Australia, commenced in September, 1925, is of interest. This investigation covered the examination of 4,068 workers. A portable X-ray plant was used. All employes in each given mine were examined whether engaged on the surface or underground. With the exception of the Northampton field where lead ore was mined, all the mines were treating auriferous ore. Men were examined at the rate of 20 per day, or 100 per week. A typical analysis is that for Kalgoorlie, where 2,980 persons were examined. Of these, 2,316, or 78 per cent, were found to be healthy as regarded their pulmonary condition; 321, or 11 per cent, from silicosis in an early stage; 219, or 7 per cent, from silicosis in an advanced stage; 114, or 4 per cent, from silicosis plus tuberculosis; and 11, or 0.4 per cent, from pulmonary tuberculosis uncomplicated by silicosis. The average periods of employment were: underground workers (82 per cent of the whole), 26 years; surface workers, dry crushing mill (6 per cent of the whole), 21 years; other surface workers (12 per cent of the whole), 33 years.

The methods of diagnosing silicosis have been minutely discussed by Watkins-Pitchford [11] and his coworkers in South Africa, and in this country by Pancoast and Pendergrass.[12]

The northern part of Ohio from the eastern to the western borders, along the shore of Lake Erie, has been known and worked for many years as a sandstone area.

Amherst, Ohio, a small village about thirty-five miles west of Cleveland, is known as a principal sandstone center of the world. The composition of the stone there quarried varies from 94 to 97 per cent silica with some silicates. The industry is engaged in the quarrying of sandstone blocks and the manufacture of building stone, curbing, and grindstones.

The Division of Industrial Hygiene of the Ohio State Department of Health has been aware of the dust hazard to the workers engaged in this industry, but the opportunity to conduct an investigation did not until recently present itself. As this was intended primarily for an incidence study of silicosis and tuberculosis in employed persons, the X-ray was the method of choice because of its accuracy,

permanence of record, and the facility with which the work could be done.

Through the support of the Committee on Scientific Research of the American Medical Association, Grant 88 for $1,000 was made to meet the major expense for the study—the cost of X-ray films. Other funds necessary for miscellaneous equipment and supplies, amounting to $300, were granted by the Graduate School of Ohio State University. Also a like grant was appropriated by the Ohio Public Health Association to meet unforeseen expenditures, but this fund did not have to be drawn upon. The services of mechanicians at the College of Medicine of the university were given freely and the X-ray Department of the Starling-Loving University Hospital provided stereoscopic equipment for reading of the films which required several months' time following the field work. Personal expenses and time of the investigator (D. J. K.) were granted by the Ohio State Department of Health. Through the kindness and generosity of the Kelley-Koett Mfg. Company of Covington, Kentucky, about $3,000 worth of new, high class X-ray equipment was loaned for the work and set up at the plants of the quarries without cost. Likewise personal representatives and experts from the Eastman Kodak Company and the Kelley-Koett Mfg. Company were on the grounds as occasion demanded, and contributed greatly to the success of the undertaking.

No effort was spared by the officials of the two quarrying companies concerned to make the study a success. Physical examinations, including the chest, had been made of all employes by the companies' physician, but have not been correlated as yet with the findings here given.

Acknowledgment is also due Dr. Kennon Dunham of Cincinnati, who so kindly reviewed all films that were diagnosed as tuberculosis, and checked over our several classifications of silicosis. Were it not for the willingness and whole-hearted coöperation of all parties concerned we could not have proceeded.

Field work was begun at the plants of the quarries on May 15, 1926, and concluded on July 1, 1926, a period of about six weeks, although the actual time of taking and developing the films amounted to twenty-one days. Interruptions caused by breakdowns, moving equipment (once), holidays, rain, etc., consumed the remainder of the time. All except two of the workers, totaling 919 men, were radiographed, all being stereoscopic exposures with the exception of a few of the newer men who had just entered these occupations. Only men actually reporting for work during the six weeks of the field study were radiographed (917 out of 919 employes).

A special form was used upon which certain data were recorded by trained clerks, together with the assistance of a trained nurse. Each man was questioned as to his nationality, present occupation, particular trade-process, date of employment by present company, whether transferred from one department to another, and length of time worked in various departments, previous occupations, and previous illnesses. They were also interrogated as to the chief symptoms of tuberculosis, such as pain, cough, hemoptysis, shortness of breath, expectoration and malaise, and notations were made as to nutrition and musculature. We were somewhat handicapped both in taking the history and the pictures by the inability of many of the men to speak the English language, and in some cases obtained meager histories. However, as a rule, the data are fairly accurate and reliable. While figures have not yet been compiled, the labor turnover in these quarries is said to be low. Many of the workers are of Canadian, Scotch and Swiss nativity, with a strong representation of the Slavish and Southern Europeans.

More than two months' time was consumed in reading the films and the following six classifications were made:

1. Essentially Negative—Those which showed no pathology, and of which there were 408 men, or 44.4 per cent.

2. Increased Fibrosis—Those which showed increased bronchial markings, radiating to all parts of the lung fields and in which the hilum shadows were especially dense. Since asthma, chronic bronchitis and bronchiectasis, as well as dust inhalation, may be causative factors for increased fibrosis, this group is of little significance as far as silicosis is concerned and in this study will be classed as "Essentially Negative." There were 238 men in this group or approximately 25.9 per cent.

3. Beginning Silicosis—In addition to a generalized fibrosis involving the bronchial trunks radiating to all parts of the lung field, there is a diffuse, discrete, punctate mottling, which seems to follow the bronchial trunks into the lung substance and which in the stereoscope appears as buds on the branch of a tree. We have arbitrarily given the name of "bronchial buds" to these discrete shadows. There were 183 men, or 20 per cent, so classed.

4. Moderately Advanced Silicosis—The same changes are noted as in beginning silicosis except that we see the bronchial buds more widely separated and of a larger size. This group was constituted of 46 men, or 5 per cent.

5. Far Advanced Silicosis—The same shadows are here again seen as observed in the two previous groups excepting that now the enlarged buds of the moderately advanced stage have coalesced and become conglomerate, and we find consolidation taking place. In addition the viscera of the mediastina may be displaced to one side or the other due to the contraction of the fibrous tissue. In several of our cases the trachea and heart shadows were considerably distorted from their normal relations. This group was composed of 18 men, or 2 per cent.

6. Silicosis with Tuberculosis—There were 19 cases, or 2 per cent of the total, showing combined pathology of silicosis and tuberculosis. This was an astounding fact to us inasmuch as workers *not* engaged in dusty occupations are said to show about this same rate of tuberculosis incidence, whereas the tuberculosis mortality and morbidity rates in workers in occupations similar to this have been stated to be much greater (see above). Out of the 919 sets of films, 7, or 0.75 per cent, were spoiled and not readable.

Summing up, we find that 646, or 70 per cent, of the men showed essentially negative X-ray findings, while 266, or approximately 30 per cent, showed distinct evidence of silicosis.

Twenty-five different trade processes were noted. Of these, rockmen in the quarry hole constituted the largest group, 162; those working in the saw mill were next with 99, while channel machine operators numbered 84, and 80 were employed in the curbing yard. Forty per cent of the rockmen showed silicosis of one stage or another, while 33 per cent of the channel machine operators, 32 per cent of the curbing yard men, and 20 per cent of those working in the saw mill showed various stages of silicosis. By far the most hazardous of all the occupations was found in the grindstone turning department. Twenty-one of 27 men, or 77.6 per cent of those so engaged, showed distinct evidences of silicosis, according to the radiographic findings.

Only one case of silicosis, this a beginning one, was found with a history of exposure of but 1 year, while there were 8 cases with an exposure of only 3 years. Forty-seven cases of beginning silicosis gave a history of exposure of from 10 to 14 years, 39 cases from 15 to 19 years, and 27 cases from 20 to 24 years. Five cases of beginning silicosis gave a history of exposure varying from 40 to 44 years.

Although 1 case of moderately advanced silicosis was found under 3 years' exposure, the remainder were over 10 years, with the peak at 20 and 24 years. The same is essentially true of cases of far advanced silicosis. The cases of silicosis with tuberculosis were distributed evenly over an exposure period of from 10 to 44 years.

A history of pain in the chest was given in 8 cases of silicosis, cough was a prominent symptom in 25, loss of weight was noted in 10, hemoptysis in 1, expectoration in 11, and shortness of breath in 19. Malaise was noted in only 1 case of silicosis with tuberculosis and in this case nutrition and musculature were poor Sputum examinations were not made. These figures for the major symptoms of tuberculosis show approximately equal relative values with like symptoms in our "Essentially Negative" and "Increased

Fibrosis" classifications. They are hardly more numerous than are reported in other industrial groups.

Combining the symptoms of all classifications, we find that cough, shortness of breath, and expectoration are the three chief ones elicited in the order named. While all of the field work and some of the tabulation is essentially completed, our study is still far from finished, but we are able at this time to draw up a few tentative conclusions and summary.

SUMMARY

1. A positive diagnosis of silicosis was made in 30 per cent of the 919 men X-rayed.

2. Two per cent showed definite evidences of a tuberculous process.

3. In this study the inhalation of silica dust among men on the job is apparently not productive of a larger than normal tuberculosis incidence.

4. The grindstone turning department presents the greatest hazard, 21 of 27 men, or 77 per cent, showing evidences of silicosis.

5. Although silicosis may appear rarely after a short exposure to dust (1 to 3 years), the great majority of cases appear after an exposure of 10 or more years.

6. Symptoms are a negligible factor as an index to the prevalence of silicosis or tuberculosis in this study as they appear equally in both the negative and positive series of cases. We do not mean, however, that they are of no value in the individual case.

7. Silicosis, in this investigation, has shown itself as a disease of slow inception, slow progress, and with hardly more than the usual relation to tuberculosis which is to be found among industrial employes generally when examined on the job.

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COMMONWEALTH FUND HOSPITAL TO BE ERECTED IN FARMINGTON, MAINE

THE Commonwealth Fund has announced that Farmington, Maine, will receive approximately $140,000 from the Fund toward the construction of a modern hospital. Farmington has 3,200 inhabitants, but the institution will serve a wide range of surrounding territory of west-central Maine. The region is shut off by ranges of hills which make it difficult to transport patients over considerable distances to cities which have adequate hospital facilities.

This section of rural New England is representative of the type of community that the Fund wants to aid through its hospital program. Active public health work is already being carried on under the auspices of the state and local departments of health and of the Maine Public Health Association, one of whose public health nurses has her headquarters at Farmington.

A 50-bed hospital is planned to demonstrate the value of such institutions in improving public health, medical and nursing services, in rural districts. This is the third of a series of such hospitals in the Commonwealth program.

SCHOOL NURSING PROCEDURE *

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WHAT IS good school nursing procedure? How is the effectiveness of a school nurse's activities to be judged?

In attaining her primary goal of maximum health and intelligent coöperation in health matters concerning the school child, the nurse needs the coöperation of children, parents, and teachers. So, broadly speaking, we may say that the effectiveness of her work may be judged by the extent to which children and parents voluntarily coöperate in the health supervision of the schools and the extent to which nursing procedures are made a definite part of the health education program in the schools.

But what are the results to which her efforts contribute? They are improvement in the health condition of pupils, in their health attitudes and habits, and in the extent of their health knowledge. These results are contributed to by her health supervision of pupils, including assistance in the health examination or, in some cases, in a nurse's health inspection, in the follow-up service to bring about needed corrections and in the protection of health through the prevention and control of disease; by assistance in securing for pupils a healthy school environment and by assisting in and promoting health teaching.

ACTUAL PROCEDURES

In this paper it will be possible to discuss only a few of the procedures by which we can judge the nurse's work. For that reason, it seems best to pick out those procedures which seem to have the most direct relation to the results hoped from her service. In many instances the same measuring rods used for the nurse's work could be applied equally well to that of the physician, principal, and teacher, for we cannot limit the responsibility for health to any one of these since the results obtained depend on the combined efforts of all.

EDUCATING THE TEACHER

Health teaching is a principle of public health nursing, so whether the school nurse makes it permeate every phase of her service is our first measure for judging the effectiveness of her work. In assisting a teacher with morning inspection she should take the opportunity to show the teacher how to detect deviations in her pupils from a normal condition of health. She should teach the children to protect their own health and that of the group. In caring for a wound she should not only demonstrate good aseptic technic but explain the reason for it. She should learn the cause of aches and pains—if she can—and explain simply the real, scientific reason for advice as to change in habits or the need to seek care and advice from a physician or dentist.

We may expect the school nurse to give assistance on three out of four days to teachers in conducting morning inspections. The attitude of teachers and principals and the size of the district must all be taken into consideration, but under favorable conditions, after a year's work it would seem that we could expect to find three-quarters of the teachers conducting a morning inspection. Good technic in making the inspection and in conducting the nurse's conference period

* Read before the Child Hygiene Section of the American Public Health Association at the Fifty-fifth Annual Meeting at Buffalo, N. Y., October 13, 1926.

are readily recognized by the intelligent observer. Both procedures should be based on aseptic principles on the one hand and teaching principles on the other.

The number of pupil conferences will vary somewhat. It is generally conceded that too many pupil consultations are almost as bad as too few. When a great many children are coming to the nurse at her daily conference period, she cannot take time to do a piece of educational work with each of them. Such a situation shows the need for more educational work with the teacher. Such work with pupil and teacher should result in the formation of health habits and in the teacher, largely through class methods, instructing the children in the care of minor cuts and abrasions; and in the home accepting more responsibility in the matter.

COMMUNICABLE DISEASE

Nursing procedures in the control of communicable disease are a direct indication of the efficiency of the school nurse. We cannot hold her responsible for the control since so many other factors enter in. State board of health rules cover this phase of school health work to a certain extent, but details of procedure must be worked out by the nurse and medical director or advisory committee. These procedures should be down in black and white for the guidance of the nurse, and of the teacher in her absence. Such procedures vary somewhat according to the local situation, but the principles underlying them apply to all localities.

CONDITIONS WARRANTING EXCLUSION FROM SCHOOL

Pupils returning after absence due to their own illness or illness in the family should be readmitted by a nurse or some one person designated to take care of this in her absence. Children showing symptoms of abnormal physical condition should be referred to the nurse or a person designated to care for this in her absence and, if the condition warrants it, sent home with a note or printed slip.

The conditions which do warrant exclusion from school should be outlined, and group instruction regarding them and other matters given to the teachers. In the case of minor skin conditions, it is helpful if the pupil excluded is instructed to report to school every day or third day for observation or treatment; this frequently secures his prompt return to school. Cases permitted to remain in school if under treatment, should be outlined also. A record of cases of contagion should be available in the nurse's or principal's office.

PREVENTIVE MEASURES

A classroom immunity record, especially where contagion actually exists, is an additional help. Usually nurses are expected to follow up cases of absence because of illness of an unexplained nature after three days. They should not be asked to go in on an attendance case except when a health condition is reported. When contagion is present, an inspection of all pupils in the room is made to detect missed cases. If there has been an exposure in the schoolroom, a daily inspection should be made for the period of incubation; in the case of diphtheria, cultures of all suspicious throats and bloody nasal discharges taken, if this is the nurse's work. There should be a definite policy outlined in regard to emergencies and first aid treatment as well as to other treatments in school. The modern conception of the place of health work in the school program demands that the health service have the emphasis placed on preventive measures. Accordingly, treatments in school are discouraged. Since the superintendent is the recognized head of the school system, he should approve these outlined procedures, regardless of whether the health service is under his direction or not.

HEALTH EXAMINATION VERSUS HEALTH INSPECTION

It is felt by many that a periodic health examination is more desirable than an

annual health inspection. Periodic examinations would seem to give the nurse a better basis for her follow-up work. The success of the health examination of pupils depends on the joint efforts of physician, nurse and teaching staff. Given a good physician with a public health viewpoint and a community without undue prejudice to medical treatment, the nurse should be able to secure excellent results. The results obtained should be compared with those outlined in the *Appraisal Form*. It may be that these results are far from satisfactory when so compared, and yet, when the number of pupils per nurse, the size of the district and other contributing factors are taken into consideration, we must feel that an unusually fine piece of work has been accomplished under the circumstances.

But there are other ways by which we can measure the good accomplished; what percentage of the parents and teachers were present and, where parental consent is necessary, what percentage of the pupils were examined? This depends largely on the coöperation of your teaching group, the intelligence of the community and its attitude toward the school and health work, as well as on the extent of your campaign. The physician, of course, advises the parent about conditions needing correction, but the nurse must give the physician any information bearing on the case and assure herself that the parent understands his advice and the reasons for it.

Arrangement of the room has some relation to the results obtained, but we may only judge whether the nurse has made the best use of the facilities at hand since these in the majority of places are far from adequate. The essentials are some degree of privacy and quiet for the examination, washing facilities for the physician, individual wooden tongue blades, chairs, table and writing equipment.

Nurses are usually held responsible for the individual health records of pupils. These records should be available to the teachers, and the nurse and the teacher should have at least one conference yearly, and in cities semi-yearly, on the physical findings for her group.

The technic of the nurse in making vision and hearing tests and in measuring and weighing pupils is easily judged, since these procedures have been carefully worked out. Accuracy is essential if the results are to be worth anything either as a basis for follow-up work or for research purposes.

Where no physician is employed and the nurse is responsible for a health inspection, it is wise to make this, too, on the periodic basis. In planning four such inspections in the life of the child, this would mean that she would make and record inspection for from one-quarter to one-third of the enrollment each year. How can this service of the school nurse be judged? We can judge the procedure, but we have no standards by which we can judge the accuracy of her observation of these conditions included in a nurse's inspection.

FOLLOW-UP

It is widely conceded that the nurse makes her greatest contribution to the school and school health work in her follow-up work in the homes. Through this contact she is able to interpret the school to the home and the home to the school.

The school physician decides what children are to take home a record of his comments on their condition, but it is for the nurse to do the subsequent follow-up work. It is obvious to all who are familiar with the usual number of pupils per nurse that she can only follow up a certain percentage of the cases. The results obtained are, of course, the ultimate criteria by which we appraise this phase of her work, but there are ways by which we can evaluate her procedure: First, does she have an educational scheme which enlists the coöperation of parents, pupils and teachers in securing the desired correction which will do much to eliminate the need for follow-up visits? Second,

does she organize her calls in relation to streets, districts, and the seriousness of the case? Third, does she consult her files and the teachers before making calls that she may have all the available information in regard to all the school children in the homes she is visiting?

HOME VISITS

The essentials of the home visit are briefly: tact, lack of hurry, definite procedure adapted to the situation, observation of environment and other family problems, and, finally, that she terminate the call in such a manner as to assure a welcome on her return. Of course, health teaching is an essential part of every home visit.

Since we cannot separate the child from his environment, the condition of other members of his family, the character of the family life as well as the hygienic factors of the home all affect his health. Follow-up work frequently calls for coöperation between the school nurse and other health or social workers in the community. Accordingly, our school nurses should establish a friendly relationship with other workers. This should mean at least one contact a year by nurse supervisor or nurse with each of the other local agencies engaged in social and health work. While the number of cases referred to other agencies is an indication of the effectiveness of a school nurse's work, we cannot use it as a measure since the number needing to be referred would vary so greatly.

APPRAISAL FORMS

We have very little basis for a quantitative appraisal of the school nurse's work and, personally, I do not believe that any purely quantitative appraisal can ever be relied upon to give a true picture. But such an appraisal form would be helpful. The AMERICAN PUBLIC HEALTH ASSOCIATION *Appraisal Form* deals with her follow-up service and the *Tentative School Health Appraisal Form*, prepared in the Department of Biology and Public Health of the Massachusetts Institute of Technology, goes further. However, this is an appraisal of the school health program as a whole and does not provide a form which we could apply to the nursing service alone. The A.P.H.A. *Appraisal Form* sets 400 visits per 1,000 per year as the standard—this includes all types of public health nursing visits to the school age child. Where the service is adequate, we can look for an increase in this number—the rate of 2 per day per 1,000 in the interests of school nursing is not too high to aim. Ninety per cent of these should be made to secure corrections of physical defects, faulty environment and habits of living or for the control of illness. It is easier to speak in terms of days because the length of school years varies so. In a 38-week year, this would be about 380 visits. We need *data* on the percentage of corrections secured and on those not secured where advised, but until physicians are more in agreement in the matter of advising corrections it will be difficult to judge the nurse's work by such criteria.

However, the figures are indicative, as is the increase in the percentage of children in, let us say, the fifth grade who have had dental care and who retain all 4 of their 6-year old molars. The general reduction in the percentage of children 10 per cent or more underweight, 7 per cent to 10 per cent under and 20 per cent or more overweight is another measure.

SCHOOL BUILDINGS

Building inspections in the city system are usually the responsibility of someone else, though even so we expect the nurse to bring unsatisfactory conditions to the notice of the principal or her supervisor. In rural schools, the county superintendent likes at least one report a year from the nurse on the sanitary conditions of school buildings. Improvements in old or incorporated into plans for new buildings, adequate playgrounds and the serving of a hot lunch may all be indicative of the effectiveness of her program.

HABITS CRITERION OF EFFICIENCY

The quality of her work is shown too in the health habits, attitudes and knowledge which pupils possess. It is, of course, the duty of the classroom teacher to teach health *per se* but, where there is no special supervisor of health instruction and where classroom teachers have not had special training for this work, it is one of the nurse's responsibilities to see that such work, including an activity program, is initiated. Suggestions on this phase of her service approved by health educators are contained in the *Manual of Public Health Nursing*. The habits, knowledge and attitudes which a nurse would aim to have children under her care acquire would be those helpful in protecting them against disease and in assisting them to develop healthy bodies and personalities.

Even though the schools have a highly organized school health program, it is still the duty of the nurse to interpret to the teachers the physician's findings and her own observations of health conditions and to secure through observation and conference an understanding of the teacher's part in the health program and of the school program as a whole.

Since the child's weight is held by health educators to be the best method by which to first arouse his interest in health, we expect the nurse, when necessary, to interest the teacher in making the regular weighing and measuring of pupils the basis of health teaching. This, of course, means securing the interest and cooperation of the superintendent. It means, too, conferences, group and individual, for nurse and teachers.

GROUP TEACHING

There is another sphere where the activity of the nurse should make an important contribution to the health of the school child—the community. Just as we find group teaching an effective method of teaching health to children, we find it a valuable means of reaching the parent and the public. Accordingly we expect nurses to take an active part in plans for health programs of Parent Teacher Associations, study clubs or other professional and civic groups. Since health is such an important factor we expect at least one Parent Teacher Association meeting to be given over to it each year. Such programs, and those arranged for other groups, cannot but help in accomplishing the desired results and in better support for our work.

BASIS FOR JUDGMENT

We all hope that the study of school health work being undertaken by the American Child Health Association will give us a better basis for judging the effectiveness of school nursing. As the nursing division of that association, our National Organization for Public Health Nursing will assist in this study. We feel sure that the study will uphold the principles upon which we feel public health nursing should be based. Undoubtedly it will disclose a sad lack where two of them are concerned: adequate records and systematic educative supervision for the nurse or nursing staff. Until we have the results of this study, we have, worked out for us by a group of school nurses, *Present Objectives, Scope of Work and Methods in School Nursing*. The *Manual of Public Health Nursing*, prepared by our organization, outlines for us the basic principles underlying good school nursing and procedures sufficiently flexible to meet the needs of rural and urban communities. Your constructive criticisms of these publications and your suggestions for the study to be undertaken will be welcomed.

EDITORIAL SECTION

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

EDITORIAL COMMITTEE

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Epidemiology the Backbone of Health Administration

Whatever the special bureau or divisional activity of a health department, the science and practice of epidemiology plays an essential part in its usefulness.

Without, consciously or unconsciously, applying the principles of epidemiology to the plan of health protection, the whole undertaking by both official and volunteer agencies becomes a blind struggle with a formless foe.

A few health departments have recognized this fact by designation of a position of epidemiologist, and some of the occupants have the training, the authority, and the influence appropriate to their tasks.

The great majority of both local (city or rural) and state departments include the functions of epidemiologist either among those of the commissioner, or health officer in charge, or vest the chief of the statistical office or the division of communicable diseases with this responsibility. Sometimes the sanitary division or a bureau of child hygiene, or even the director of health education, is trusted with this most important of the analytical and policy forming functions of health administration.

Elsewhere in this issue * will be found the recommendations of a conference group called together at the invitation of the International Health Division at Baltimore on May 12 to consider the functions, organization and qualifications or training of personnel for a service of epidemiology in a department of health in a state or province.

It will of course be recognized that the limitation of the discussion to health activities in major political divisions of the population, and to the application of epidemiology solely among the communicable diseases, was necessary at the present state of development of the science and art of public health practice in this country.

Similarly, in accepting at least by implication the definition of epidemiology by Hirsch, the conference narrowed the range of the science well within the present practice, as understood in England and as followed by students and authors in this country as well. To describe the distribution and types of the diseases of mankind as they occur in epochs of time and at points of the earth's surface, and relate these to the external conditions surrounding the individual which determine his manner of life, is all certainly within the scope of epidemiology; but there are racial, genetic, age, sex, emotional, and many other internal or at least inherent factors bearing upon the expression of disease among groups, which determine its distribution in time and place, independent of the external conditions.

* See page 777.

Furthermore, perhaps the greatest contributions of epidemiology in the future are likely to be by the application of its methods, the scientific, critical analysis of the natural history of disease, to others than those now accepted as communicable in character. The essential problem of epidemiology is the analysis of disease in a group of persons, as distinct from its cellular pathology, or its natural history from origin to recovery, invalidism, or death in the individual.

Without the epidemiologist or a service applying the essentials of this science, the policies and the performance of health officers must remain crude and haphazard.

It is not likely that a more succinct and practical series of recommendations could be drawn up at present, as a guide to state and provincial departments of health on this continent. The influence of this honest and simple statement of the administrative use of epidemiological service should be widespread in this country.

The International Health Board, the Johns Hopkins University School of Public Health and Hygiene and their guests, the various members of the conference of epidemiologists are to be congratulated by the several branches of the public health profession sharing in the work of disease control and prevention.

Who Will Be at Cincinnati?

The older men — the veterans who set such a swift pace in ideas and activities — will be there. *They* do not think they can afford to miss the A.P.H.A. meeting at Cincinnati, October 17 to 21. They have rich backgrounds of tried experience. They know enough to know that they don't know it all and they come to find out by hearing about the experiences of others.

* * *

The oldsters want to meet the youngsters—they need to meet and know them. It is a fifty-fifty proposition. Each has something for the other.

* * *

For the younger men the trip will be worth while merely to see and hear and meet the outstanding leaders in public health in North America. And the younger men themselves would miss much if they could not get there to size up the new blood and to try out their ideas on them. The youngsters of one, three or five years in public health are a promising lot. If you need a new staff member and wish "the pick of the country" come and look for him at the Cincinnati gathering of public health workers—those who are starting out, those who are coming along, and those who have arrived.

* * *

A skeleton organization can keep your departmental offices open so that practically the whole staff can go. The fires can be banked for a week or so—there is a whole, long year after the Cincinnati meeting in which to prove that we are on the job. Give the secretaries and clerks a chance to carry on. They will do nobly.

* * *

If you are the "big boss" don't flatter yourself with the idea that you are the only one who can get his money's worth from the trip to Cincinnati.

* * *

The "big bugs" in public health will find the rest of the "big bugs" there—and those who have become a bit "biggity" need to brush up against a bunch of the just as big. The "shrinking violets," if there are any in public health, will grow like beanstalks in the genial, sympathetic atmosphere.

* * *

National, state and local leaders will be there; public and voluntary; large and small. All of the professional groups whose collaboration make up the present-day health movement. In no other annual gathering can be found so wide a representation.

* * *

And do not overlook this: no printed record can fully take the place of hearing a paper or address, with the cross-fire of wit and ideas in the accompanying dis-

cussion. The warmed over food is mighty good only if we had our share at the first serving.

Relations Between Medical Men and Health Officers

To all those who have seriously contemplated the problems arising out of the relations between medical men and health officers in developing a public health program the following excerpt from the proceedings of the House of Delegates of the American Medical Association needs no comment.[1]

The question involved is: Is it or is it not one of the essentials of ethical practice of medicine that the practitioner of medicine become, in his local area, a quasi, unpaid assistant to the department of health?

That question has never been definitely answered.

Whatever may be the opinion of either party, the department of health or the local practitioner, the situation is to be faced and settled on a broad basis of mutual understanding, not by useless resistance of either party to the controversy.

Health boards and health officers are established facts. The physician has his established position in society. Whether he will or not, he must accept the existing conditions; he cannot nor should he attempt to stop the progress of civilization; rather should he become an aide to the administration of the functions of the health officer, and by so doing enhance his value to his patients and his public; for in the end he will find that resistance is only a damage to his public and also to his reputation and usefulness; for the health officer cannot perform his function without the physician, nor in the end can the physician alone or the entire medical body stop the progress of the effort for better hygienic surroundings and better health, nor if he were successful in such an effort would he accomplish anything but destruction of his own reputation and his usefulness in his place of residence.

If there were no other reasons than those set down in the article under consideration, it is a condition and not a theory that confronts the physician, and he would not improve his personal position in his local environment by unreasonable resistance, while he will improve his position only in collaboration in the administration of the local health officer.

There is no other course to be taken than that of collaboration, and in that method of meeting the situation he will find his only path to safety and material betterment, nor can the medical group of any locality expect to benefit in a material way.

1. *J. A. M. A.*, 88, 23:1808 (June 4), 1927.

The Origin of Life

Man differs from all other animals in that his mind is always reaching out for the explanation of things as they are seen, and trying to discover the underlying principles responsible for them. Life itself, and the origin of life, are necessarily two of the most important things to which attention can be devoted.

During the past year several scientists have again taken up the perennial question of the origin of life. Professor Duggar seems inclined to think that the filterable viruses which cause the mosaic disease of plants may come very close to the first forms of life, and may hold the secret of life itself. He has conducted a series of valuable experiments on these viruses, which has led to an increase in our practical knowledge concerning them; and may possibly lead to a better understanding of their nature and origin, and with that of the origin of life, although we do not feel much hope that the solution of this great question will be reached by studies in this direction.

More recently, Dr. Victor C. Vaughan has again written on the subject. For many years he has held that life is fundamentally chemical and probably exists in simpler and less tangible forms than any living cell. Indeed, he believes that life is molecular rather than cellular, holding, very properly, that the size and shape of the cells of plants and animals are less important than their contents; and he believes that the gap between chemical molecules and living creatures is gradually being filled in by new discoveries.

The essential and probably primary

compound of all living matter is protein. It is the basis of all life, and the development of new species is brought about by changes in the molecular arrangement in the structure of the protein molecule. When an arrangement has been evolved which is best fitted to the functional needs, its chemical constitution will remain remarkably constant. He holds further that environment has been a stronger factor in the evolution of life, as well as in the production of varieties and species, than the average biologist of to-day is willing to admit.

In partial confirmation of his views, Dr. Vaughan cites the discovery of the bacteriophage, which he holds is a more minute form of life preying upon bacteria as bacteria prey upon higher forms. The nature of the bacteriophage is under discussion at present. Apparently the trend of opinion among those best fitted to judge, is that the bacteriophage is not a living entity. This is contrary to the view of d'Herelle and others, and the final placing of the bacteriophage in life depends upon further research.

One man's guess is as good as another's, and none seems to approach the root of the matter, though most are more plausible than the cosmic dust theory of Arrhenius. What if the bacteriophage and mosaic disease viruses do pass the finest filters? May there not be still smaller forms yet to be discovered?

> Big bugs have smaller bugs
> Upon their backs to bite 'em
> And little bugs have lesser bugs
> And so ad infinitum.

In view of the marvelous discoveries which are constantly being announced, predictions are dangerous. Many ideas which have been held as proven for a long time have been completely upset by the discovery of radium and its disintegration products, and we are only beginning to realize the tremendous part which electricity plays in life, in the constitution as well as the behavior of matter. The chemist may produce an artificial egg which cannot be told from the real article, but will he ever produce an egg which will hatch? We are old-fashioned enough to believe that life is the product of a supreme and all powerful Creator, and that the production of life from organic or inorganic matter will remain an unsolved problem until man gains a greater insight into the methods of this Creator than seems possible at the present time.

PUBLIC HEALTH TOPICS

Two Kinds of Politics

One way to keep politics out of public health is to keep public health out of politics. The truth of this aphorism has been brought home with cruel reality to some health officers who have ignored it. Two recent instances in the same state illustrate the application of this principle. Both men were good health officers. One refused to let the record of his department be used for campaign material. The Mayor under whom he was serving was defeated, but the health officer still has his job. The other let his chief use the health department record in his campaign for reëlection. He was defeated and the health officer loses his job.

Regardless of the possibility that the different results occurred because one guessed right and the other guessed wrong, it is only the sound principle which can be defended. Politics makes strange bedfellows, but the public health profession can maintain its integrity only if it refuses to be one of them.

The New Patent Medicine

It used to be fairly simple to avoid the doctor. Any one of a variety of bottles contained something "guaranteed to cure what ails you or money refunded." Now, we are told, health is to be obtained through food. One compound is advertised to contain all the vitamins (and it may actually contain some, as a good many things do). Another product is said to be good for you because it is used just as nature grew it (and it probably is good for you though it

does not provide a balanced diet). A certain butter substitute, it is asserted, is made with milk (which may mean that it is churned in milk, not necessarily that there is any milk in it). Claim is made for a substance that it "destroys germs" (and it doubtless will if you can first catch your germ).

Here is a new problem for the sanitarian—the battle with half-truths, half-truths promoted with the tremendous force of modern advertising which makes them more dangerous than the downright untruth feebly disseminated by older methods.

The intelligent advertiser who is conservative in statement is damaged by the fanatic, the ignorant and the unscrupulous. The health officer does not have the means to investigate, and the public lacks the interest to do so. Partial security lies in the fact that individuals cannot afford to buy and lack the capacity to consume every one of the products advertised.

A Duty for Physicians Only?

The President of the American Medical Association in his address* to the House of Delegates referred to two previous addresses of his in which he said, "It was urged that physicians only are qualified by heritage, education and experience to teach the public the basic principles of health preservation," and also "The address stressed the preëminent position which should be given to the physician, as the only individual in the community with adequate basic knowledge on which to act in health matters."

* *J. A. M. A.*, May 21, 1927, p. 1644.

ASSOCIATION NEWS

Do not delay making a reservation of your hotel room at Cincinnati for the A.P.H.A. Convention on October 17 to 21. Present indications are for a record attendance. A hotel reservation blank is printed on page 835 of this issue.

PROGRAM FEATURES AT ANNUAL MEETING

THE PROGRAM of the Fifty-sixth Annual Meeting of the A.P.H.A. at Cincinnati, October 17 to 21, although still in tentative form undoubtedly will be one of the most interesting in the Association's history.

The reports from the section chairmen indicate that the sectional and special sessions will not only be on a par with those held in recent years but in a number of them there is every evidence that they will surpass previous high standards.

The program for the Health Officers' Section is especially strong this year. This section has tentatively planned five sessions with a possible sixth session. Three of these sessions will be joint meetings with the Public Health Nursing Section, Public Health Education Section and Food and Drugs Section.

The Laboratory Section is planning four sessions, one of them a joint session with the Food and Drugs Section.

The Vital Statistics Section is planning to devote its first session to a consideration of the reports of various committees; the second session will be devoted to a discussion of the situation in non-registration states; and the third session is to be devoted to miscellaneous vital statistics papers.

The Public Health Engineering and Industrial Hygiene Sections are arranging for three sessions each.

The Food and Drugs Section has submitted a program for five sessions, two of which are to be joint sessions as noted above.

The program for the Child Hygiene Section is unique in its development. In each of its three sessions one subject will be presented by a speaker who is making an exhaustive study of the subject assigned to him. The discussion in each session will dwell on this subject.

The Public Health Education and Public Health Nursing Sections are planning one ses-

CINCINNATI FROM THE KENTUCKY HILLS

sion each in addition to the joint sessions in which they will participate.

Five of the sections are planning luncheon and dinner meetings and there will be a special luncheon conference on venereal disease control.

Six special sessions have been planned for this year on the following topics: Prohibition, Health Program in Institutions of Higher Learning, Venereal Disease Control, Mental Hygiene, and Preventive Medicine and Epidemiology.

The General Sessions will be limited to two this year.

Definite times for the various meetings have not yet been assigned. The schedule, however, has tentatively been arranged as follows:

Monday, October 17

Morning—Registration and certain related meetings
Afternoon—2.00–4.30—Scientific sessions
Evening—Opening General Session

Tuesday, October 18

Morning—9.30–12.30—Scientific sessions
1.00–3.00—Luncheons and demonstrations
Afternoon—3.00–5.30—Scientific sessions
Evening—Dinner of Ohio Society of Sanitarians

Wednesday, October 19

Morning—9.30–12.30—Scientific sessions
1.30–3.00—Luncheons and demonstrations
Afternoon—3.00–5.30—Scientific sessions
Evening—Second General Session

Thursday, October 20

Morning—9.30–12.30—Scientific sessions
Afternoon—1.00–3.00—Luncheons and demonstrations
Afternoon—3.00–5.30—Scientific sessions
Evening—Entertainment provided by Local Committee

Friday, October 21

Morning—9.30–12.30—Scientific sessions
1.30—Luncheons and committee meetings

TRIPS AND ENTERTAINMENT

The customary reception and dance will be held following the opening General Session on Monday evening. A second dance has been provided for following the General Session on Wednesday evening. The Local Committee announces that the Cincinnati Symphony Orchestra will give a concert on Thursday night, probably at the new Masonic Temple, now being built at a cost of $3,000,000. Special

functions have been arranged for ladies' entertainment, including tea at the Cincinnati Woman's Club; tea and inspection at the Children's Hospital; a visit to the Rookwood Pottery and Art Museum; a visit to the Taft Art Gallery; and a visit to Hughes High School and tea at the Cincinnati University.

HOTEL GIBSON
Convention Headquarters of the A.P.H.A.

Trips have been planned to the Water Works and Filtration Plant; Mariemont, a model town; the hospitals of Cincinnati, including the Cincinnati General Hospital and the Children's Hospital; one of Cincinnati's Certified Dairy Farms; also a general sight seeing tour.

The September issue of the JOURNAL will carry the complete preliminary program of the sessions and also trips and entertainment.

All meetings of the Association will be held in the Hotel Gibson, and the meetings of the Ohio Society of Sanitarians and the Conference of Health Officers and Public Health Nurses will be held at the Hotel Sinton nearby. Dr. Monger has extended a cordial invitation to the delegates to the A.P.H.A. meeting to attend the sessions of the Ohio health officers.

A banquet will be given by the Ohio Society of Sanitarians on Tuesday night for the members of the A.P.H.A., at which the Honorable Newton A. Baker is expected to be the principal speaker.

Among the other related meetings which are being planned are those for the School Medical Inspectors, the Directors of State Health Department Laboratories, the Committee on Sewerage Disposal and a conference of the secretaries and officers of affiliated state societies.

Those who are planning to attend the meeting are urged to make their reservations for accommodations promptly. From all indications the number in attendance will probably be large.

LOCAL COMMITTEE

Chairman, Wm. H. Peters, M.D., Health Commissioner, Cincinnati

Vice-Chairman, Bleecker Marquette, Executive Secretary Public Health Federation

Secretary, Mrs. Marie C. Weintz, Cincinnati Health Department

Treasurer, A. F. Sommer, Manager, Metropolitan Life Insurance Co.

M. B. Brady, M.D., President, and W. R. Wherry, M.D., Clyde P. Johnson, and A. Graeme Mitchell, M.D., members, Board of Health.

Information—Wm. S. Keller, M.D., Chairman; Eric W. Gibberd, Assistant Chairman; E. F. Van Buskirk

Meeting Rooms—J. S. Shuey, Chairman; John J. Larkin, Wm. G. Rhein, Geo. W. Schubert

Membership—Julien E. Benjamin, M.D., Chairman; A. F. Sommers, Bleecker Marquette, Wm. H. Peters, M.D.

Exhibits—Thos. Quinlan, Chairman; Homer Calver

Publicity and Daily Bulletin—W. F. Wiley, Moses Strauss, Elmer P. Fries, Harry W. Brown

Entertainment—Sol H. Freiberg, Chairman; Randall J. Condon, A. F. Sommer, Murray M. Shoemaker, Henry Bentley, Thos. Quinlan

Woman's Entertainment—Mrs. Wm. S. Keller, Chairman; Mrs. A. Clifford Shinkle, Mrs. Herman Hoppe, Mrs. Julien Benjamin, Miss Mary E. Johnston, Miss Alice Thatcher, Miss Elizabeth Pierce, Miss Marguerite Fagin, Mrs. Louise K. Tooker, Mrs. Murray Shoemaker, Mrs. E. J. Wohlgemuth, Mrs. Albert J. Bell

Scientific Trips and Transportation—Edgar Dow Gilman, Chairman; Chas. J. Livingood, J. B. Stewart, Jr., J. A. Hiller, Samuel I. Lipp, J. K. Hoskins, A. C. Bachmeyer, M.D., Thos. Tallentire, A. Doherty, Miss Elizabeth Pierce, J. W. Barrett, E. B. Martin

Hotels—Cary P. McCord, M.D., Chairman; G. A. Nast, M.D., Harry Hess, John Palmer Dargall, Miss Helen Keelor

Ohio Health Commissioners' Conference, Dr. C. Aleshire Neal, Chairman

HOTELS

A number of Cincinnati hotels are listed, with their rates, for the convenience and information of delegates. The map on page 836 shows the location of most of these hotels, and also of places of particular interest to visitors. Hotel Gibson, headquarters for the meeting, is shown as No. 6. Applications for reservations should be made directly to the hotels, and as early as possible to avoid later inconvenience. An application blank is printed below.

RAILROAD FARES TO CINCINNATI

A reduced railroad fare will again be granted to members of the Association travelling to the Annual Meeting. Round trip tickets will be sold at one and one-half times a one-way rate (minimum $1.00) to Cincinnati. Tickets will be good only via the same route in both directions. This arrangement has been made with the railroads on the Identification Certificate Plan. Certificates will be mailed to all members of the Association about September 1. If you do not receive your certificate by September 15, and you expect to attend the meeting, kindly advise the Executive Secretary, 370 Seventh Avenue, New York, N. Y., enclosing a self-addressed envelope, and a certificate will be mailed to you at once.

A certificate must be presented at the local ticket office when the ticket is purchased. With-

CINCINNATI HOTEL RATES

Hotel	Double Room With Bath	Double Room Without Bath	Single Room With Bath	Single Room Without Bath
Alms	$5.00 to $7.00	$3.00 to $4.00	$3.00 to $5.00	$2.00 to $2.50
Broadway	5.00 to 8.00		3.50 to 5.00	
Cincinnati Club *	5.00 to 7.50		2.50 to 6.00	
Emery	4.50 to 5.00	3.00 to 4.00	2.50	1.50 to 2.00
Fountain Square	4.00 to 7.00		2.50 to 4.00	
Gibson	5.00 to 10.00		2.50 to 8.00	
Grand	4.00 to 6.00	3.00 to 4.00	2.50 to 4.00	2.00
Kemper Lane	Apartments for 2 to 8 persons at $4.00 per person			
Metropole	4.50 to 8.00	3.50 to 4.00	3.00 to 5.00	2.00 to 2.50
Sinton	5.00 and up		3.00 and up	
Vernon Manor	5.00 to 10.00		3.00 to 5.00	

* Guest cards available through local committee.

---*(Cut off on this line)*---

HOTEL RESERVATION BLANK

To.....
(Name of Hotel)

Please reserve for me.....rooms for.....persons for the A. P. H. A. Meeting. (Cross [X] is placed after my preference.)

Single room.....Double room .....

Maximum rate per day for room $.....Minimum rate per day for room $.....

I expect to arrive Oct..... If date of arrival is changed I will notify you at least 24 hours in advance.

Please acknowledge this reservation.

Name .....

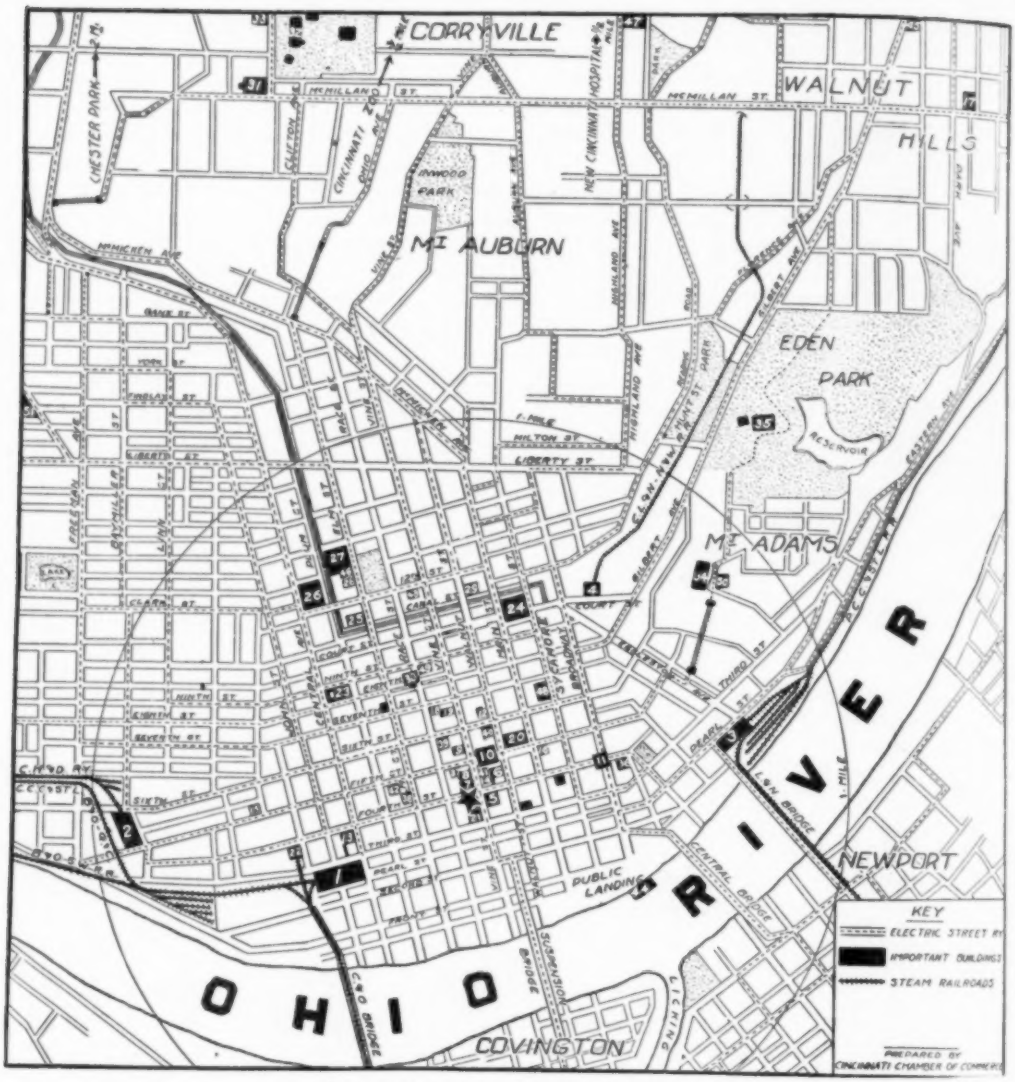
Street Address .....

City..... State.....

If this blank is addressed to the Hotel Gibson, please check one of the following:

.....1. If accommodations are unavailable, please make reservation for me at one of the following hotels.....

.....2. If accommodations are unavailable, please advise me.



KEY TO MAP OF THE CITY OF CINCINNATI

Hotels

Alms Hotel	17
Broadway Hotel	11
Cincinnati Club	30
Fountain Square Hotel	10
Grand Hotel	13
Havlin Hotel	9
Hotel Emery	8
Hotel Gibson	6
Hotel Sinton	5
Metropole Hotel	12

Schools, Colleges, Etc.

Art Museum and Art School	35
College of Music	46
Conservatory of Music	47
Hebrew Union School	33
Hughes High School	31
Ohio Mechanics Institute (Emery Auditorium)	29
University of Cincinnati	32

Other Points of Interest

Business Men's Club	49
Cincinnati Baseball Park (Redland Field)	51
City Hall	23
Court House	24
Coney Island Landing	44
Hamilton County Memorial Hall	28
Music Hall	27
New Y. M. C. A.	25
Old Hospital	26
Post Office	20
Public Library	19
Rookwood Pottery	34
Sterling Glass Works	50

Depots

Central Union Depot	1
C. H. & D. Depot	2
Court Street Depot	4
Fourth Street Depot	22
Pennsylvania Depot	3

out a certificate the special rate will not be granted. Only members of the Association are entitled to use these certificates, but only one is required for a family.

Dates of sale will vary slightly, according to the distance of starting point from Cincinnati, but in general they will cover the period of October 13 to 19. Definite information may be obtained from your local ticket agent.

Return portions of tickets must be validated at Cincinnati by the agents at the regular ticket offices of the lines over which tickets read, between October 17 and 27. They must be used to reach original starting point not later than midnight of October 27.

Railroad fares from various centers to Cincinnati, with Pullman rates, are given below.

ART MUSEUM AND ART ACADEMY

RAILROAD FARES FROM VARIOUS CENTERS TO CINCINNATI

	Regular Rate	Special Rate		
	One Way	Round Trip	Lower Berth	Upper Berth
Atlanta, Ga.	$17.30	$25.95	$4.50	$3.60
Baltimore, Md.	20.31	30.47	5.63	4.50
Boston, Mass.	33.63	50.45	9.00	7.20
Buffalo, N. Y.	15.71	23.57	4.50	3.60
Cleveland, O.	9.15	13.73	3.75	3.00
Chicago, Ill.	10.26	15.39	3.75	3.00
Dallas, Tex.	34.85	52.28	12.00	9.60
Denver, Colo.	45.20	67.80	13.88	11.10
Detroit, Mich.	9.38	14.07	3.75	3.00
Indianapolis, Ind. ..	3.95	5.93	3.00	2.40
Jacksonville, Fla. ..	29.52	44.28	9.00	7.20
Kansas City, Mo....	22.44	33.66	7.50	6.00
Los Angeles, Calif..	85.74	128.61	26.25	21.00
Louisville, Ky.	4.31	6.47	3.00	2.40
Memphis, Tenn. ...	18.00	27.00	5.63	4.50
Minneapolis, Minn..	24.92	37.38	7.50	6.00
Nashville, Tenn. ...	11.03	16.55	3.75	3.00
New Orleans, La. ..	30.28	45.42	9.00	7.20
New York, N. Y....	27.01	40.52	7.50	6.00
Omaha, Neb.	27.50	41.25	8.25	6.60
Philadelphia, Pa. ...	23.77	35.66	7.50	6.00
Pittsburgh, Pa.	11.19	16.79	3.75	3.00
Portland, Ore.	87.47	131.21	27.38	21.90
Salt Lake City, U...	63.32	94.98	19.13	15.30
San Francisco, Calif.	85.74	128.61	27.38	21.90
Seattle, Wash.	87.47	131.21	27.38	21.90
St. Louis, Mo.	12.40	18.60	3.75	3.00
Toronto, Can.	17.28	25.92	4.50	3.60
Washington, D. C...	20.31	30.47	5.63	4.50

W. W. PETER JOINS A.P.H.A. STAFF

W. W. Peter, M.D., Dr.P.H., Fellow A.P.H.A., and a member of the Public Health Education Section for several years, becomes Associate Secretary of the Association on August 1. Although Dr. Peter will be particularly in charge of the development of the increased use of the facilities of the Association by members, municipal and state authorities and volunteer agencies, he will be active in many other phases of our broadening program of service.

Dr. Peter is a graduate of the University of Chicago, C.P.H. of Harvard and Massachusetts Institute of Technology, and was made a Dr.P.H. at Yale on June 23 last. He is well known for his health education work in China, where he went in 1911. In 1913, he was selected to head the beginnings of a national health education campaign sponsored by the China Medical Association and the National Medical Association, consisting of 1,000 foreign and foreign trained Chinese doctors. In 1915, he organized the Joint Council on Public Health Education by bringing together these two bodies and a lay organization, the National Committee

DR. W. W. PETER

of the Y.M.C.A. The staff of the council at the time he left China in 1926 numbered 17 Chinese and foreigners in the national headquarters in Shanghai, and 4 foreign and 1 Chinese, all medically trained, as associate directors in five provinces.

In June, 1920, Dr. Peter conducted what is probably the largest intensive community health campaign in the world up to the present time. In one week, in Foochow, China, 247 meetings were held and, by count, 110,000 people attended. Three hundred thousand pieces of health literature were distributed. The work was done by 2,480 volunteers previously trained by Dr. Peter and the local doctors. Every summer for years cholera had appeared in Foochow. In 1919, there were approximately 18,000 cases. In the summer of 1920, following this campaign, only a few sporadic and probably imported cases developed.

For several years Dr. Peter served as chairman of the Sanitation Board of the Chinese and Foreign Famine Relief Committee. During this period the committee expended $6,000,000 in various forms of famine relief.

In 1916, Dr. Peter gave a course of 27 lectures on public health at the Peking Union Medical College (China Medical Board of the Rockefeller Foundation). For some time he was editor of the Department of Preventive Medicine in the *China Medical Journal*. He founded and served as the first editor of *Health*, Shanghai, China, and has written many newspaper and magazine articles on various subjects. He is also the author of the following monographs: "Famine Fever," "Observations on Public Health in Southern Asia," and "Broadcasting Health in China."

DEATH OF WILLIAM PAUL GERHARD

William Paul Gerhard, M.D., consulting sanitary engineer in New York City for more than 40 years, and a member of the A.P.H.A. since 1915, died at his home in Scarsdale, N. Y., July 7.

He was 72 years old and had been retired for a year. Dr. Gerhard was born in Hamburg, Germany, and was graduated from the Polytechnic School at Carlsruhe in 1875. He came to the United States in 1877 to become Assistant Engineer of the Department of Public Works in St. Louis, Mo. Two years later he went to Newport, R. I., as chief assistant to Colonel George B. Waring. Since 1883 he has been a consulting engineer.

He was a member of many scientific societies and the author of a score of monographs.

NEW MEMBERS

Garland Howard Bailey, B.S., M.D., Dr.P.H., Baltimore, Md., Associate Professor, Johns Hopkins University

Ton Ciocarlan, M.D., Detroit, Mich., Health Officer in Bureau Hygiene and Preventive Medicine of the Rumanian Health Department (Assoc.)

Robert K. Cutter, Berkeley, Calif. (Assoc.)

Arnaldo de Moraes, M.D., Rio de Janeiro, Brazil, In charge of Prenatal Work, Inhauma Health Center (Assoc.)

Mrs. Evarts V. DePew, San Antonio, Tex., Secretary to Women's Auxiliary of American Medical Association

Eva E. Faught, Carbondale, Ill., Bacteriologist

Isidore H. Goldberger, M.D., New York, N. Y., Assistant Director of Educational Hygiene, Department of Education, City of New York

Joseph C. Horan, M.D., New York, N. Y., Assistant Medical Director, Metropolitan Life Insurance Company

Francis Licata, M.D., Revere, Mass., Chairman, Board of Health

J. C. Morrison, Hickman, Ky., Director, Fulton County Health Unit

Frances P. Ostberg, R.N., Elsinore, Calif., Public Health Nurse

Leland W. Parr, Ph.D., Beirut, Syria, Associate Professor Bacteriology and Hygiene, American University

Edna Porter, R.N., Concord, Calif., Public Health and School Nurse

William F. Reynolds, D.V.M., Teaneck, N. J., Health Officer

Mary E. Spencer, B.S., M.A., Washington, D. C., Health Education Specialist, National Catholic Welfare Conference

Forrest Spindle, Richmond, Va., In Laboratory, State Board of Health

Clyde L. Vorhies, M.D., Cambridge, O., Health Commissioner

Joseph W. Wallace, B.S., M.D., Thomasville, Ga., Health Officer

Frank L. Watkins, Tulsa, Okla., Director of Health Education, Tulsa Public Schools

BOOKS AND REPORTS

A Textbook of Bacteriology— *By Hans Zinsser, M.D., Professor of Bacteriology and Immunology, Harvard University Medical School. With a section on Pathogenic Protozoa by E. E. Tyzzer, A.M., M.D. (6th ed.). New York: Appleton,* 1927. Price,

The sixth edition of this well known textbook of bacteriology comes to us with the statement that the entire volume has been "rewritten, revised, and reset," that modifications and additions have been made to practically all important sections and an approximaely equal number of omissions have been made to eliminate outworn material. The section on protozoan infections which was formerly written by Dr. F. F. Russell has been supplied in this edition by Professor E. E. Tyzzer. The preface also states that the author has allowed himself to discuss at length the problems of diagnosis, specific therapy and prevention.

One is immediately struck by the fact that the author adheres to the classification proposed by Migula in 1897. For the most part this is commendable and the reviewer prefers that classification to those since proposed, but in view of the amount of attention which has been given to the subject, it would seem that an up-to-date textbook would at least mention the fact that there were other classifications which have been adopted in part or in whole by many workers.

Some of the "recent" contributions referred to date back to 1906. The word seems to apply to anything not more than 25 years old. In another place we find "The undersigned obtained * * *." It is evident that the revision of this edition has not been carefully done and that sections have been taken from former editions and articles by the author.

The transmission of bovine tuberculosis to human beings is wofully out of date, there being nothing later than 1910, and the section is evidently taken from the edition of 1914, since the author refers to some material as being "one of the most valuable contributions made to this problem during the last three years." In addition to this, proper credit is not given. The proof of the transmission of bovine tuberculosis to human beings was given from the laboratory of the State Live Stock Sanitary Board of Pennsylvania some 3 years before the publications of those to whom it is credited.

In view of the statement in the preface concerning specific therapy and prevention, one is surprised to find that the only reference to anti-anthrax serum is a line and a half, stating that Sclavo was the first to produce passive immunization by means of serum. As this was in 1895, it seems that the author has not kept up with the very striking advances made, particularly in America, in the use of anti-anthrax serum, which has been greatly improved by Eichhorn through the use of spore vaccines in producing a higher degree of immunity than was possible by the older methods. The World War indirectly caused a great increase of anthrax in this country, chiefly through horse hair shaving brushes; 162 soldiers were infected. In the Army and in New York unusual opportunities for the use of serum and its study were afforded. The medical student, and the practitioner as well as the health officer, for whom we are told the book is intended, have a right to expect the most recent information along these lines.

In discussing Gram's Method, the author refers the reader to *Chemical Pathology,* Wells, Second Edition, 1914, from which he has evidently taken his statements, though it gives only 27 lines on the subject, and though three editions of that book have come out since 1914. All late work on this important matter seems to have escaped the author's notice.

The section on botulism is not up-to-date. There is no mention of the probable relationship between botulism and forage poisoning in the lower animals and nothing is said of the serum produced by Graham. The most recent summary of epidemics referred to is 1918, and the author has ignored entirely *Public Health Bulletin No. 127,* September, 1922, by J. C. Geiger, E. C. Dickson and K. F. Meyer, giving a total of 159 deaths in the United States alone. Certainly the investigations made by Geiger of the Public Health Service in conjunction with the Hooper Foundation and the University of Chicago are among the most recent and most important, and should not be ignored in an up-to-date book.

Though there are many omissions, and so many evidences of carelessness in revision, in other respects the book is up to date, particularly as to immunity, streptococcus infections and scarlet fever. There is even a very good discussion of the possible relationship between herpes and encephalitis.

The section on immunity is easily the best part of the book. The discussion on influenza is interesting, but one is left up in the air, though the author inclines to the view that the bacillus of Pfeiffer is probably the responsible organism.

The references are all put at the bottom of the pages, and are well selected as far as they go, though we have pointed out a number of instances in which they are very far from being recent.

The book is well printed and will doubtless have a wide circulation. We feel that in such a rapidly advancing subject as bacteriology, the student or physician who buys a book is entitled to the latest and the best. Repeated editions which are packed with old material and neglect the most modern facts except upon some selected subjects fail to give a square deal to students and the professional public. The author and the publishers should wake up.

M. P. RAVENEL

The Health of the Child of School Age—*By Various Authors, with Foreword by Sir Thomas Oliver. New York: Oxford University Press,* 1927. 204 pp. Price, $1.80.

This book includes a most interesting and instructive group of lectures given before the Institute of Hygiene. Ten subjects are covered—the dental problem, nervous affections, the diet, disorders of digestion, infectious disease, affections of the nose, throat and ear, eye troubles, skin disorders, physical exercise, and preventable deformities. Each subject is presented by an expert in that particular field.

The problems discussed are those occurring in the English public schools, which correspond to our private boarding schools. These excellent lectures are based on the experience of the authors, some of whom are medical officers in English schools of this type.

Two chapters are particularly interesting and valuable—the one on "Diet in Schools," by L. R. Lempriere; and the one on "Disorders of Digestion During School Life," by W. Soltau Fenwick. Mr. Lempriere especially emphasizes the need of quality in the diet, particularly to include the A and B vitamines, and the use of green vegetables and fresh fruits. He emphasizes the great importance of using whole wheat flour in place of the refined flours. Whole wheat flour is not only better diet but it has an economic advantage, "whereas white flour is a whited sepulchre."

The discussion of disorders of digestion is particularly practical, covering such factors as habits idiosyncrasies, lack of appetite, insomnia and dreams, tricks and habits, causation and symptoms of indigestion. The author, Dr. Fenwick, bases treatment largely on good habits as to rest, food, and elimination.

The chapter on "The Incidence of Infectious Diseases in Public Schools" contains studies of the prevalence of those diseases and of the percentage of pupils who enter the school protected by previous attacks. It discusses the skin disorders, peculiarly valuable because of the frequency of these things in boarding schools partly because of the age of the persons concerned and partly because of the close contact in dormitories and on the play fields.

These lectures constitute brief and excellent accounts of the topics discussed, the content of which should be familiar to every school medical inspector, particularly to the medical officers of boys' and girls' boarding schools, our so-called private schools. These would have great value, too, to medical officers of institutions in which are lodging any considerable number of adolescents.

C. H. KEENE

The Tired Child—*By Max Seham, M.D., and Grete Seham, Ph.D. Philadelphia: Lippincott,* 1926. 342 pp. Price, $2.00.

This book, dealing with the important problem of the nature and prevention of chronic fatigue in infancy and childhood, suffers from the fact that the authors have been at too great pains to render their discussion interesting to non-technical readers. Such over-simplification is hardly necessary for the layman who is sufficiently interested and intelligent to read such a book through; and one feels that the authors would have served their aim better by presenting their material in better balanced, more compact form. The over-dramatization of much of their case material is likely to hinder, rather than to help, the reader's clear understanding of the problems discussed.

These defects are the more to be regretted because of the valuable nature of the work as a whole. Emphasis is placed upon the parts that must be played by the home and the school in combating fatigue, and upon the importance of

both physical and mental hygiene. The nature and symptomatology of chronic fatigue is discussed at length, and means presented by which its presence and causes may be determined. Somewhat extensive questionnaires are given, but it seems that more caution should be advised in the use and interpretation of these. There is definite danger, for example, in submitting to an unstable or neurotic child such a list of symptoms and "leading questions" as that which is presented on pages 95 to 98. In general, however, the suggestions may be found helpful, and the book may be studied with profit, particularly by parents, teachers, and nurses. The extensive and excellent lists of references call for especial commendation.

B. M. CASTNER

Adapted Group Gymnastics—*By Lillian Curtis Drew. Philadelphia: Lea and Febiger,* 1927. 150 pp. Price, $1.75.

Designed for the use of instructors of physical education in the public schools, this treatise sets forth the need of a preliminary physical examination, discusses methods of organization and administration, and describes exercises designed to be corrective of various postural and other weaknesses. The work is supposed to be done by groups.

Line drawings of positions and exercises add much to the clarity of the descriptions. These exercises cover such general fields as correction of faulty postures, scoliosis, feet, constipation, regulation of menstrual function, weight normalizing, infantile paralysis, abnormal heart conditions, enlarged thyroid glands, and nervous instability.

The book fails to emphasize sufficiently the need that the preliminary physical examination should always be given by a physician. Very few physical instructors are competent, either by training or experience, to make a sufficiently accurate physical examination. Neither are they competent to prescribe exercises for physical defects, particularly for such weaknesses as abnormal heart conditions or as "compound structural scoliosis." More harm than good is likely to result. To do exercises for improvement of these defects adequately or even safely in groups is impossible.

As a book of exercises, to be used by the physician and instructor working together, as a basis of prescriptions, this work has a decided value. Its use by the average instructor of physical education in public schools is not to be encouraged.

C. H. KEENE

Heliotherapy—*With special consideration of Surgical Tuberculosis. By A. Rollier, M.D. (2nd ed.) Translated by G. de Swietochowski, M.D., M.R.C.S. New York: Oxford University Press,* 1927. 318 pp. Price, $6.25.

Those who use light as a therapeutic agent will welcome this new edition from the pen of the "High priest of modern sun worshippers." The whole work has been modified from the first English edition. The present translator has expressed more closely Rollier's viewpoint than was found in the first edition, which was impregnated too much with the personality of the English group to be entirely a Rollier work.

The book is much improved through changes in the quality of paper and illustrations. The chapter on the history of heliotherapy has been enlarged. Chapters are devoted to "Experimental Contributions" and "Climatology."

In the discussion of Regional Heliotherapy, the tiresome case reports have been eliminated and have been replaced by the simpler but convincing "before" and "after" photographs.

The statistics of the results of cure have been brought down to the year 1921.

The tremendous impetus given to the therapeutic use of light in the last few years has been largely due to Rollier's remarkable demonstration of its effect in patients with surgical tuberculosis at his clinic at Leysin.

As a pioneer his enthusiasm was necessary to attract the attention of a conservative profession to its beneficial effects. This enthusiasm is unnecessary at the present time and there is greater need to call a halt to some of the extravagant claims which have been made. The statement that is found in the concluding chapter, "It does more than cure tuberculosis for it also guarantees results," sounds more like patent medicine propaganda than the statement of a conservative physician, and it is hoped that the translator made an unfortunate selection of words rather than expressing Rollier's thought.

We need a more critical study of the unfortunate results produced by ill advised treatment and more attention to a thorough physical examination of candidates before taking the cure.

It is also hoped that Rollier as an enthusiastic leader in advocating the use of heliotherapy will in future editions enlarge upon the discussion of contraindications which is given but one page.

Heliotherapy is a two-edged sword; while it is a potent aid, when properly applied to selected cases, it is sometimes a source of disaster when applied without discrimination.

CLARENCE L. HYDE

Health Habits by Practice. The Health Happiness and Success Series—*By William E. Burkhard, M.A., Supervising Principal, Philadelphia Public Schools, Raymond L. Chambers, M.A., Supervising Principal, Philadelphia Public Schools, Frederick W. Maroney, M.D., Director, Department of Health Instruction, Atlantic City, New Jersey. New York: Lyons & Carnhan, Book One,* 429 pp. Price, $.96. *Book Two,* 432 pp. Price, $1.10.

These books are written for textbooks to be used in the intermediate and upper grades. They assume that the foundations in the development of health habits have been laid in the primary grades.

Book One, dealing with "Things to Do," aims to make the work in habit formation attractive and to help tie up school subjects with life experience, and is full of suggestive projects and problems to be worked out by the children themselves under the supervision and guidance of the teacher. It deals with such topics as, cleanliness of the skin, teeth, nose, mouth, surroundings; habits of posture, play, work, rest, sleep, safety; care of the eyes, ears, clothing; mental habits and food habits. Only brief mention is made of alcohol and tobacco. In general the subject-matter and suggestions in this book are detailed, useful, and interesting. Some of the illustrations and topic headings are negative in nature and it would seem that a positive appeal would be more constructive.

All such books contain minor inaccuracies and questionable presentations. The number of such faults seems rather large in these books.

Book Two is primarily physiological in nature, dealing with the different systems and parts of the body, the sense organs, the food necessary for health, safety first, and first aid. The thirty odd pages dealing with home and community health seem far too few to cover the ground in a satisfactory manner. Twelve pages are devoted to alcohol and tobacco. The subject-matter covered on these topics is well presented and generally accurate. The illustrations which are physiological in nature are fairly good. Many of the other illustrations are questionable as to their preparation, correctness and attractiveness. The material on diseases and disease germs could be made more positive in nature were it preceded by a chapter on harmless and useful bacteria.

In Books One and Two, the "Helpful Things to Do" and "Health Problems and Questions" at the end of each chapter are useful in linking up health subjects with everyday life. They are also useful in helping the child to find the high lights in each chapter. At the end of each book are some twenty pages devoted to "Useful Information." These include such topics as, The School Doctor and Nurse, The School Lunch, How to Make Lime Water, Setting Up Exercises, Foods Suitable for Children. Following this is a Measuring Scale on Weight in Relation to Age, Height and Type, based on the tables of Bird T. Baldwin, Ph.D. There seems to be a chance for great variation of interpretation of this table, as to whether the child should be classed as tall slender type, average type, or short stocky type, and one questions the wisdom of leaving the task of typing children to the teacher or nurse who does the weighing and measuring.

One also wonders whether the separation of the two books is practical and helpful, or whether a separation of Book One to include "Things to Do" and "Physiology and Hygiene" for the intermediate grades and Book Two the same material for the upper grades would be better.

The books should be very useful in stimulating the interest of the child in health habits and in linking up these habits with everyday life. The printing and book making are excellent. The illustrations are plentiful and in general they are of good quality C. M. MUNSON

La Rougeole (Measles), Epidemiology, Immunology, Prophylaxis—*By Robert Debré & Pierre Joannon. Paris: Masson & Co.,* 1926. 288 pp.

Health officers and practitioners of medicine and teachers of pediatrics and bacteriology will welcome this valuable presentation of original studies and a widely representative literature of measles.

Evidence from many countries is offered in a way so correlated as to be of much convenience especially that of France, and Paris in particular. Under the main heading of Epidemiology we have a picture of the trend of measles morbidity and mortality since 1850, in Europe, and a general review of its incidence in other countries, particularly as compared with scarlet fever, diphtheria and whooping cough.

In the author's experience, as in this country, measles is apt to be gentle or benign in the country and in the homes of the well to do in large cities, but is severe among the dwellers in poor, crowded, unsanitary homes.

In the second section of the book Immunology is dealt with, and we are carried with the latest clinical and laboratory experience through the immune status of the expectant mother, the susceptibility of the new-born child and the resistance or refractory condition of those who have passed through the infection. "The presence of specific measles antibodies in persons immune to measles is proved by the passive transmission of this immunity."

Prophylaxis is dealt with under the headings of general measures and the principles of use of convalescent serum. In addition to the desirable measures for reducing room overcrowding Debré and Joannon urge the separation of uncomplicated from other cases in hospitals, the admission of nursing mothers with their infants in hospitals and the desirability of a permanent trained attendant or nursing staff in hospitals admitting measles patients, and the use of cubicles in measles services.

Absolute prevention and sero-attenuation of the disease are considered in their various applications and modifications, as well as the several types of results which may follow these different uses. These authors are strong advocates of sero-attenuation for little children because it gives a certainty to future immunity, it is economical, calling as it does for small amounts and permitting the drawing off of convalescent serum heavy in immunisine content.

Directions are given for collection of immune serum, its preservation for use, and indications especially in children's hospitals.

Excellent results are reported from the use of adult serum of parents of about 30 years of age. Failures with adult serum, not recent convalescents, are apt to reach 5 per cent rather than 1–2 per cent as with convalescent serum.

In the final chapter active immunization is discussed with references to clinical attempts from 1757 to the present day. Lack of precision and wide use for confirmation are given as reasons for lack of progress in this direction. However, confidence is expressed in the principle and Debré and Joannon indicate the directions of advisable and safe further efforts.

The bibliography of some 350 titles is unusually complete and includes generous reference to articles in other languages than French.

No better review, nor more suggestive and encouraging critical presentation of the measles problem has appeared since the use of serum immunization has been included in the resources of health officers, as well as of practitioners of curative medicine. HAVEN EMERSON

The Personal Equation—*By Louis Berman, M.D. New York and London: Century,* 1925. 303 pp. Price, $2.50.

The author wields a facile pen. His gifts of expression and his skillful use of words so beguile one that the average reader is apt to go along with him and accept all that he says at its face value. Unquestionably he knows his subject, but his apparent desire to make a readable book, in which he has succeeded admirably, and the expert way in which he applies his knowledge to existing as well as theoretical conditions, leads him into some inaccuracies which should be noticed.

He gives as facts a number of things which are contradicted by evidence equally as good as that upon which he bases his statements. In other words controversial matters are not given a balanced consideration. For example, he apparently attributes to the parathyroid glands only the function of regulating the use of lime by the body. There are at least three other functions performed by these glands all of which may have something to do with the results that the author attributes to lime deficiency. His statement, "There are children who are idiots because they lack a thymus gland," may possibly be true, though there is very strong experimental evidence to the contrary, and in the present state of our knowledge we do not believe such a positive statement is justified. He lists the pineal gland as among those whose functions have been worked out in a fairly satisfactory manner, which is not the general opinion. In his general discussion on "Intelligence and Temperament," his statement, which he stresses, that the internal secretions "begin to exert an important influence" only when the vertebrates are reached, goes too far. For many years a fact which was known to Darwin and Wallace has been recognized and reconfirmed by zoölogists: namely, that the sacculinidae invade certain crabs, eat out their sex glands and the cells of the fat body, and that changes in the secondary sex characteristics of both sexes result.

The chapter on the "Glands in Childhood" is particularly good, especially that portion of it in which the balance of foods is discussed.

On the whole the author has produced a book which is readable and informative. His word portraits and his analyses of the characters of a number of well-known men are fascinating, even if one is inclined to question the entire accuracy of the relation between cause and effect as stated by the author.

The book is well printed and can be commended for general reading, especially by those who are sufficiently familiar with the subject to maintain their poise. M. P. RAVENEL

Health Supervision and Medical Inspection of Schools—*Drs. Thomas D. Wood and Hugh Grant Rowell. Philadelphia: Saunders,* 1927. 637 pp. Price, $7.50.

The fundamental aim of health supervision and medical inspection in schools is to raise the physical standard of the school child. This sums up the aims detailed in the very good book by Drs. Wood and Rowell.

The emphasis on the teachers' obligation to study the normal signs of "health" in order to detect early the signs of departure therefrom, is pertinent and should receive more attention by educators.

The coördination of the duties of the physician, nurse, and teacher in schools is well conceived and the suggestions for the care of the "special class child" will be helpful to those school authorities who are facing the problems, but who have, as yet, not met the situation adequately.

The idea of appraising school health work is good. Much of the work is hard to measure objectively and still harder to evaluate, chiefly because the methods are as yet too new to have furnished sufficient data extending over a sufficiently long time to be convincing as to its economic worth. Also the technic used in the conduct of the work still varies greatly. One must prove that money spent in health work has been well spent, and in order to do this, every effort should be made to get convincing data as soon as possible. Health officers would welcome such a contribution, be it favorable or unfavorable as to present methods.

Every teacher should carefully study the "Signs of Health Disorders" in Chapter VII, and should discuss with the school doctor the physical condition of each child in her class, after the doctor has examined him. This will not only be of benefit to the child, but will broaden the teacher's knowledge and extend her usefulness.

The use of the term "Body Mechanics" in discussing what has so long been referred to as "posture" is most commendable. We are concerned with the economical use of the bodily mechanism when in motion rather than its positions at rest.

The chapter of "Health Supervision of Teachers" (Chapter XV) should be read carefully by every teacher and school superintendent, and emphasis should be laid in the Teacher Training Schools especially upon the duty of the teacher to demonstrate continually the essentials of health maintenance and promotion, in her personal appearance, her bodily mechanics, her nervous and emotional control, as well as in the ventilation and cleanliness of her rooms; and in all other aspects of her personal and environmental influences for health. In Chapter XVIII the teacher's part in health education is briefly discussed and if she demonstrates daily in her own case the fundamental health habit practices she is teaching, her subject will have a real meaning and purpose in the minds of the pupils.

Chapter XX should encourage the kindergarten and first grade teachers to believe that the child of the future will come to her in a better physical condition; practicing better health habits; better protection against contagion; and better adapted to the "business" of learning.

The Wood-Rowell book is to be recommended as a profitable investment and a helpful addition to any school library. The gathering together of data and forms from so many different sources will provide many suggestions to doctors, nurses, and teachers already engaged in this work. LE ROY A. WILKES

Bibliography of Industrial Hygiene Investigations, Commonwealth of Australia (Melbourne)—

1. Industrial Hygiene, Textile Industry, Sydney, N. S. W., 1923, 27–37 long pages.
2. An Investigation concerning Ventilation and the Sandstone Dust present in the Air of certain Sewer Tunnels under Construction at North Shore, and in other Sandstone Workings, 1924, 13 pages.
3. An Investigation concerning the Health of the Employes and the Ventilation in certain Wine Cellars, 1924, 4 pages.
4. An Investigation concerning the Working Conditions and the Health of Quarrymen in certain Government Quarries in New South Wales, 1924, 7 pages.
5. An Investigation into the Sandstone Dust Hazard among Miners, Quarrymen, and Stonemasons in New South Wales, 1924, 14 pages.
6. An Investigation Concerning the Incidence of Lead Poisoning in Motor-car Painters, 1924, 10 pages. E. R. H.

Clinics, **Hospitals and Health Centers**—*By Michael M. Davis, Ph.D., in collaboration with other staff members of the Commitee on Dispensary Development of the United Hospital Fund of New York. New York: Harper*, 1927. 546 pp. Price, $5.00.

This interesting and instructive volume is the outgrowth of the work of the committee on dispensary development, organized in 1920, and aided by a 6-year financial grant from the Rockefeller Foundation. The committee has not only assembled opinions and experiences of individuals and institutions concerning problems of out-patient service, but has conducted administrative experiments which have yielded valuable information as to the soundness of various principles and the effectiveness of different methods. "Clinics and hospitals, which affect the well-being of millions of Americans and involve an expenditure of over a billion dollars annually, will thus be able to determine their policies, to improve their procedures, and to serve their communities more effectively through intelligent, conscious study rather than by the wasteful method of trial and error." (In 1922 the American Medical Association estimated that 8,000,000 persons were receiving medical care annually in out-patient clinics in the United States. The number has now increased to about 10,000,000.)

The book is divided into 5 sections, each section containing from 3 to 9 chapters. A reading list and a carefully selected bibliography of text references are appended. The first section deals with medical practice in hospital and clinic, tracing the growth of medical practice in institutions and outlining principles of institutional practice.

The scope of clinic service is the subject of the second section. The growth of out-patient work is reviewed, and the various types of clinics, the types of patients served, their medical needs, social and economic status, and the relationships of clinics and outside agencies are discussed. One of the valuable chapters of this section appropriately includes several definitions.

The remaining sections deal in some detail with clinic management and the technic of various departments of out-patient work. The place of clinics in the health program, health centers, and clinics primarily concerned with diagnosis and treatment of disease, are among the problems considered.

The book abounds in statistical information of considerable value to students of this important problem. It is well written, printed in good readable type, and should prove of immense value to trustees, physicians, health officers and other persons interested in clinics and hospitals. IRA V. HISCOCK

Nurses and Nursing—*By Alfred Worcester, M.D. Cambridge: Harvard University Press*, 1927. 173 pp. Price, $2.00.

Several of the chapters on the history of nursing, the biographies of the famous leaders of the profession whom the author knew, and the descriptions of the nursing schools of Germany, Switzerland, and England have been delivered as addresses by Dr. Worcester. To the medical profession and those who share the responsibilities of the public's health he turns for solution of one of the big problems in nursing—improvement of the training of nurses who are assistants in the cure and prevention of disease. There is a charm in the simple, straightforward style of the author and the personal touches of one who has spent years so close to the training of nurses.

Venereal Disease, Its Prevention, Symptoms, and Treatment—*By Wansey Bayly. London: Faber & Gwyer*, 1926. 242 pp. Price, $3.50.

The point and vigor of this little volume is refreshing, particularly the chapter on prevention. That all the author's views will not be acceptable to many is certain. He may be forgiven for his enthusiasm when the desperate need for more adequate prevention is so obvious to all workers in this field. The prescriptions, general methods, and special technic are clearly presented making a valuable book for the busy practitioner.

The chapters on syphilis are clearly written and give attention to the practical things in which the physician is interested. The author evidently presumes that the reader has covered other texts and is familiar with the subject in general. He feels free to discuss the instruments and technic without long explanations. This section is interestingly written and covers the field well.

In the treatment of gonorrhea the author presents definite lines of procedure and specifically names those things most likely to interfere with a cure. They are stated in such an order that it is easy for the practitioner to keep the entire picture in mind.

This volume should be in the library of every worker in this field. RAY S. DIXON

The Evolution of Tubercle—*By Allen K. Krause. New York: Journal of Outdoor Life*, 1927. 95 pp. Price, $1.00.

This monograph is based on the research subject, "The Anatomical Structure of Tubercle from Histogenesis to Cavity." It was originally delivered as an address before the Fifth Conference of the International Union Against Tuberculosis at Washington, D. C., October 1, 1926.

Proceedings of the Twelfth Annual Conference of the National Committee for the Prevention of Blindness—1926—*New York: Nat'l Com. for Prev. of Blindness, 370 Seventh Avenue.* 112 pp.

Conservation of sight has made a steady stride in the public health field. It is given an important place in the program of the public health nurse both in her preventive and follow-up work as brought out in these published papers. The public health nurse is an important factor in the prevention of blindness, according to Conrad Berens, M.D., surgeon of the New York Eye and Ear Infirmary, who has contributed to the proceedings. It is in the discussion of the public health aspects of trachoma that the responsibilities of the public health officer are comprehensively treated. Such men as Drs. A. J. Chesley, J. A. Stucky, Marshall C. Guthrie, S. J. Crumbine and William Campbell Posey, who have worked among the Indians of the Northwest where trachoma is prevalent have given first-hand information beneficial to other health administrators who have embraced eye conservation in their programs.

The director of a school health education program will be interested in the newest developments in the testing of vision demonstrations described in this volume.

Municipal Index, 1927—*A Yearbook for city, town and county officials and for all others interested in municipal progress and public improvement activities (4th ed.). New York: American City Magazine.* 711 pp. Price, $4.00.

One of the features of this fourth edition of the *Municipal Index* that give immediate help to the public health worker is the bibliography on public health, classified according to general publications and special subjects, such as food handling and inspection, milk inspection and regulation, ventilation, vital statistics, nursing, child and school hygiene, etc. The per capita expenditures of cities of the first, second and third class in the conservation of health and for sanitation are items in the financial statistics of cities.

In the section on sewers, sewerage and sewage disposal the cities and towns reporting no systems or plants are listed. Another section is devoted to swimming pools and other public bathing places. Here the Report of the Joint Committee on Bathing Places of the A.P.H.A. and the Conference of State Sanitary Engineers is printed in full from December, 1926, issue of the AMERICAN JOURNAL OF PUBLIC HEALTH. Water supply statistics and a bibliography on water supply and purifications are mentioned as of special interest to the municipal and public health administrator. A directory of mayors of cities of 30,000 population and over and of city managers is given, but a directory of health officers is omitted in this volume as in previous editions. A. B. T.

Relation of Venereal Diseases to Vision Impairment. Venereal Disease Control—*Vol. IV American Health Congress Series. New York: National Health Council.* 73 pp. Price, $1.50.

While there is nothing particularly new in the series of papers presented for the Joint Sessions, the American Social Hygiene Association, the National Committee for the Prevention of Blindness, and the American Public Health Association, which constituted a feature of the American Health Congress held in Atlantic City in May, 1926, nevertheless the individual interested in this important feature will find practically every phase of venereal disease activity indicated.

It is worthy of note that the 1875 Annual Report of the Public Health Service carried a series of recommendations which are practically the same as the method of procedure to-day.

It is an interesting conclusion that "the newness of the subject has worn off, and persons who like to get up on platforms and tell an interested public 'just how to do the whole thing' have found that they cannot hold an audience on this subject any more. This is one of the surface indications of loss of interest but it is really a gain. This group of well meaning 'reformers'—misinformers we might call them—have moved on to conquer new worlds."

Every health worker who finds his interest in venereal disease control beginning to lag should read Volume IV of the American Health Congress series. ALEC N. THOMSON

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Joint **Health Center**—An endowed health center serves as the basis for a joint health service for three cities, financed from gifts instead of from taxes.

AILES, A. Endowed Health Department Serves Tri-Cities. Nation's Health, 9:6 (June), 1927.

Smoke **Abatement**—A symposium conducted by British authorities, including a medical health officer and an engineer. Evidence of the harmfulness of smoke is only indirect but nevertheless convincing. Preventive measures are discussed.

BANKS, CYRIL, et al. Smoke Abatement as a Public Health Problem. Pub. Health, 40:9 (June), 1927.

Anopheline Larvae Food—Algae, bacteria, or infusoria are all found to be satisfactory food for anopheline larvae, and dead material may also be utilized to some extent. The study indicated the difficulties to be encountered in any attempt to starve larvae by a chemical attack on food.

BARBER, M. A. The Food of Anopheline Larvae—Food Organisms in Pure Culture. Pub. Health Rep., 42:22 (June 3), 1927.

Rheumatic Fever Streptococcus—A toxin producing streptococcus distinguishable from others was isolated from cases of rheumatic fever. Injections of the toxin produced typical rheumatic symptoms.

BIRKHAUG, K. E. Rheumatic Fever. J. Infect. Dis., 40:5 (May), 1927.

Does Health Education Take?—Questions on health submitted to a large group of school children indicated that in this sample, at least, health education failed to register as a rule. The children did not know about proper room temperature and lighting, and were hazy about diet.

CAIRNS, LAURA. Questions Prove Inadequacy of Health Instruction. Nation's Health, 9:6 (June), 1927.

Bacteriophage from Sewage—Failures of the bacteriophage to lyse some strains of bacteria isolated from urinary infections is due to the specificity of the action between phage and host. Filtered municipal sewage gives a more nearly heterogeneous phage which lyses most infecting organisms. Sewage thus becomes a new therapeutic aid.

CALDWELL, J. A. Sewage Filtrate as a Source of Bacteriophage. J. Infect. Dis., 40:5 (May), 1927.

Sewage Chlorination—A review of studies indicating that fixed doses of chlorine cannot be added satisfactorily to sewage. The most satisfactory method of determining dosage is the orthotolidine test.

ENSLOW, L. H. Recent Developments in Sewage Chlorination. Pub. Health Rep., 42:24 (June 17), 1927.

Preventorium Management—A description of the organization and administration of a preventorium in Maryland. An excellent project well managed.

EVANS, G. T. Maryland's Miracle House for the Undernourished. Nation's Health, 9:6 (June), 1927.

Permanent Value of Nutrition Classes—Does health education of school children "take"? Children in a nutrition class in Nashville were followed up a year or so later. Sixty per cent showed lasting improvement in health habits. The authors point to the need of regular home visits—in other words, continuous supervision.

FIELD, A. M., and STENNIS, M. A. Nutrition Class Experiments with School Children. Nation's Health, 9:6 (June), 1927.

Rheumatic Fever—Another paper on the causes, treatment, and prevention of rheumatic fever. The British medical press has been flooded with such papers since the appearance of the special report on rheumatism by a committee of the British Medical Association. "Energetic treatment of carious teeth, infected tonsils and adenoids, and constipation" is called for, together with other effective child health activities and adequate institutional care of cases.

FORDYCE, A. D. Rheumatic Affections in Childhood. J. Roy. San. Inst., 47:12 (June), 1927.

The Deafened Child—The program of the American Federation of Organizations for the Hard of Hearing is explained to teachers. They are asked to watch for signs of deafness in children under their care. Mildly and moderately deafened children are to be given special

consideration in their regular classes. Extremely deafened children are to be taught in separate classes.

HAYS, HAROLD. The Deafened Child in the Elementary Schools: The Economic and Educational Aspects. M. J. & Record, 125:11 (June 1), 1927.

Distribution of Breast Milk—The way in which the Detroit Bureau of Wet Nurses encourages the regular production of milk, collects it, and distributes it as "certified" and "pasteurized" makes an interesting story. Some producers give a daily output of three or four quarts and receive for it from $2,500 to $3,500 per year. Well-to-do parents pay 30 cents per ounce; others pay less; indigent patients get it free.

HOOBLER, B. R. The Production, Collection, and Distribution of Human Milk. J. A. M. A., 88:23 (June 4), 1927.

Status of Rabies—Rabies shows a country-wide increase. The use of antirabies vaccine has been made compulsory in 50 cities and some counties, although the efficiency of this prophylactic measure is still open to further study.

HULL, T. G. Seasonable Prevalence and Control of Rabies. Nation's Health, 9:6 (June), 1927.

Rural Health Administration—A well told story of the organization of the Cattaraugus County health unit, and some of the results and future possibilities. This is an excellent example of possibilities of telling about health work in lay magazines. It is to be regretted that more of such articles are not published.

KINGSBURY, J. A. Cattaraugus County and Our Rural Health. National Munic. Rev., 16:6 (June), 1927.

Chilian Health Service—An interesting account of the creation of an effective public health service in Chili.

LONG, J. D. Reorganization of the National Health Service of Chili. Pub. Health Rep., 42:24 (June 14), 1927.

Lead Poisoning Symptoms—The "lead line" is found to persist after lead accumulation ceases; it is questionable whether lead absorption is responsible for arteriosclerosis, as often suggested. Pallor and hypertension may have some relationship and may be the result of lead poisoning.

MAYERS, M. R. A Study of the Lead Line, Arteriosclerosis, and Hypertension in 381 Lead Workers. J. Ind. Hyg., 9:6 (June), 1927.

Drinking Water on Trains—The field staff of the U. S. Public Health Service have made frequent inspections of the water coolers on trains and find the conditions satisfactory. With few exceptions, the common carriers are fulfilling the requirements of the interstate regulations.

MILLER, A. P. Drinking Water Coolers on Common Carriers. Pub. Health Rep., 42:23 (June 10), 1927.

Hygiene and Longevity—Stories of persons who broke the rules of health, yet lived beyond the "three score and ten" mark, introduce a discussion of the hygiene of the later period of life. Not a paper for health propaganda purposes, but stimulating nevertheless.

OLIVER, THOMAS. Hygiene and the Later Period of Life. Med. Off., 37:23 (June 4), 1927.

Venereal Case-Finding—The venereal disease case-finding and case supervision activities of several New Jersey cities are described. Unusual court facilities and procedures are also included.

PATTERSON, R. S. Finding Venereal Infection Sources. Nation's Health, 9:6 (June), 1927.

Eugenic Sterilization—More than a thousand defectives in California institutions have been sterilized. Although some of the operations were done for the supposed therapeutic effect, the majority were done for eugenic reasons only. This is a report of actual accomplishment, not an argument over the theory of something which is not done.

POPENOE, PAUL. Eugenic Sterilization in California. J. Soc. Hyg., 13:6 (June), 1927.

Spinners' Cancer—A convincing demonstration of the improbability of spinners' scrotal cancer being caused by friction against the mule or the oil sprayed from it, the commonly accepted exciting causes of the condition. Instead the cause appears to be friction of the rough material of the overalls, the movement being produced by the unusual attitudes necessary to assume in repairing broken threads. Overalls of soft material and belts instead of inelastic suspenders are the proposed preventive measures.

ROBERTSON, J. An Inqquiry in Regard to the Cause of Spinners' Scrotal Cancer. J. Ind. Hyg., 9:5 (June), 1927.

Vitamin B—This paper presents additional evidence that vitamin B is not an entity, but is a complex of growth promoting and beriberi preventive factors. The author suggests that vitamin B be retained as the name of the complex, and that B-P be used to designate the beriberi preventing substance.

SALMON, W. D. On the Existence of Two Active Factors in the Vitamin B Complex. J. Biol. Chem., 73:2 (June), 1927.

Paratyphoid and Ice Cream—A very completely reported epidemiologic study of an outbreak of paratyphoid fever which resulted in fixing the source of infection as a woman who prepared and sold "halfpenny cornets" (ice cream cones?) of ice cream.

SOOTHILL, V. F. An Outbreak of Paratyphoid "B" Fever Conveyed by Ice Cream. Lancet, 1:24 (June 11), 1927.

Persistence of Botulinum Toxin—Under usual conditions, botulinum toxin was found to remain potent in discarded canned foods for long periods, even when the foodstuff dried. An indication of the value of examination of suspected foodstuffs even though dry or decomposed.

STARIN, W. A. The Persistence of Botulinum Toxin in Discarded Canned Foods. J. Infect. Dis., 40:5 (May), 1927.

Rheumatic Fever Streptococcus—The sterile filtrate of cultures of streptococci isolated from cases of rheumatic fever killed guinea pigs when injected in large doses, but arthritis was not produced.

STEINFIELD, E., and JACOBS, M. S. A Study of the Toxic Filtrates of Anhemolytic Streptococci Recovered from Patients with Rheumatic Fever. J. Lab. & Clin. Med., 12:9 (June), 1927.

Colon Bacillus in Milk—*B. coli* are found to be indicative of improper pasteurizing procedures, and hence a useful check on plant performance. A standard maximum *B. coli* content is proposed.

SWENARTON, J. C. Can *B. Coli* Be Used as an Index of the Proper Pasteurization of Milk. J. Bact., 13:6 (June), 1927.

Incidence of Illness and Death—In the Hagerstown study, 100 illnesses of three or more days duration were reported for each death. A fertile field for flights for the imaginative figurer.

SYDENSTRICKER, E. A Comparison of the Incidence of Illness and Death. Pub. Health Rep., 42:25 (June 24), 1927.

Age Curves of Illness—In the Hagerstown study, the illness curve is highest from 1 to 10 years, dropping to its lowest point from 20 to 25 years, and rising gradually throughout the remainder of life. The converse "curve of good health"—persons not ill for 26 months—is an interesting conception.

SYDENSTRICKER, E. The Age Curve of Illness. Pub. Health Rep., 42:23 (June 10), 1927.

Milk Plant Laboratories—A plea for friendly coöperation between the local health department and creamery laboratories for the improvement of the sanitary control of the milk supply.

TAYLOR, G. B. Community Importance of Milk Plant Laboratories. Nation's Health, 9:6 (June), 1927.

The Influenza Streptococcus?—A "pleomorphic streptococcus" is isolated from the blood and nasal washings of influenza cases soon after the onset. The authors do not assert that this organism is the cause of the disease, but report their findings as suggestive. Poliomyelitis, encephalitis, and now influenza are to be laid at the door of this germ of many disguises and aliases.

THOMPSON, D., and THOMPSON, R. Investigations on the Aetiology of Influenza. Lancet, 1:22 (May 28), 1927.

The Cause of Influenza—The author reports his inability to isolate *B. pneumosintes* from a number of patients during the onset of an attack of influenza, using the several methods suggested by Olitsky and Gates. Nor would the serum from these patients agglutinate an antigen prepared from a culture of this organism.

WILSON, G. S. An Attempt to Isolate *Bacterium pneumosintes* from Patients Suffering from Influenza. Lancet, 1:22 (May 28), 1927.

Comfort Zones—For men at rest and stripped to the waist the comfort zone lies between 66° and 82°, with an optimum at about 72°. At a relative humidity of 50, the optimum temperature in winter is 70° when indoor clothing is worn.

YAGLOU, C. P. The Comfort Zone for Men at Rest and Stripped to the Waist. J. Ind. Hyg., 9:6 (June), 1927.

HEALTH DEPARTMENT AND OTHER REPORTS

IRA V. HISCOCK

Newton, Mass.—Early in 1926, the Board of Health established an advisory council made up of organizations interested in public health. This council includes representatives from the school committee, the central council, the welfare bureau, the district nursing association, the hospital, the medical club, the federation of women's clubs, and the Chamber of Commerce. The purpose of the council is to bring the board in closer contact with the public in an advisory capacity.

Another interesting item in the last annual report refers to the plan by which the physicians in this city of 54,971 population, are to report through the local board of the State Commissioner of Public Health the cases of cancer which come under their supervision. In view of the scarcity of data regarding the number of living cases of cancer in a representative community, it is believed that this plan, agreed upon by the physicians, should yield valuable information. Special reporting blanks have been prepared for the purpose.

The net cost of the health department during the year was 79 cents per capita. There were 16 cases of diphtheria with no deaths. An infant mortality rate of 49.8 is recorded on the basis of 943 births, and 47 deaths of infants under 1 year of age. The crude death rate per 1,000 population was 10.18. The school inspection report shows that 7,025 children were examined during the year, with 3,408 found to have defects. A classification of the defects indicates that 1,365 children had defective teeth; 1,545, defective tonsils and adenoids; 398, enlarged glands; 33, heart, organic; 62, heart, functional; 66, lungs; 729, posture; and 542, spine; among other conditions. The report consists of 26 pages in addition to 4 statistical insert pages.

Kentucky Committee for Mothers and Babies, Inc.—The second annual report of this pioneer organization tells a heroic story of maternity and child care in a county where travel is on horseback or by boat. The purpose of the organization is "To safeguard the lives and health of mothers and young children by providing trained nurse-midwives for rural areas where resident physicians are few and far between—these nurse-midwives to work under supervision; in compliance with the regulations for midwives of the State Board of Health, and the law governing the registration of nurses in Kentucky; and in coöperation with the nearest medical service."

The average staff for the year consisted of 3¾ nurse-midwives and 1¼ nurses not midwives. The centers of work are Hyden, Wendover, and Jessie Preston Draper (Up River), the latter having been built and opened during the year. A total of 2,378 cases were registered from the beginning of the year, 121 of which were midwifery patients. There were 14,826 visits paid by the nurse-midwives, 520 of which were prenatal, 43 delivery, and 384 postnatal. In addition, considerable time was spent in group instruction, conferences or clinics. One of the attractive features of this brief report is the front cover showing a photograph of a Leslie nurse leaving the headquarters on horseback for the day's round.

The Rockefeller Foundation—The 1926 review, in a brief space of 54 pages, embraces an ever-widening range of important activities for the promotion of public health. The report itself is a model of logical arrangement, typography, effective use of illustrations, and conciseness. It tells a story of enormous significance.

In considering the essential factors of health progress, the following seems worthy of quotation: "Finally, the public must be brought, through education of children, the wide diffusion of information, and the concrete services of clinics, health centers, and visiting nurses, to appreciate and support the idea of preventing disease and of promoting health. In a democracy, at any rate, public opinion cannot be ignored, whatever the temptation of the health officer to envy the hygienic efficiency of military camps or of such an expert's paradise as the Panama Canal Zone.

"To sum up: the effectiveness of a national system, of public health service depends upon the appropriate and coöperative development of scientific research; medical education; the training of health officers, laboratory workers, engineers, and nurses; the creation of central services; the organization of administrative units; the enactment of appropriate legislation;

the provision of adequate funds; and the development of sound public opinion."

The Foundation has interested itself during the year in the advancement of fundamental medical education; in the professional training of health officers, nurses, sanitarians, statisticians, laboratory workers, and other personnel; demonstrations in combating specific diseases, such as hookworm, malaria, and yellow fever; in the improvement of central health department services; in the organization of rural health departments with full-time personnel; and in the promotion of international coöperation as through contributions to the League of Nations for its health work.

Under a new plan of organization perfected in 1927, the Rockefeller Foundation now has 17 members, with 10 officers. These officers include besides the chairman of the board of trustees, and the president, 3 vice-presidents for the New York office, the Far East, and Europe respectively. A divisional committee has been organized for international health problems, and another for medical education.

Otero County, Colo.—The first annual report of the Otero County Health Unit for the year ending January 1, 1927, is compact and concise in form and is printed on mimeographed sheets bound in a green paper cover. This county, located in southeastern Colorado, has an area of 1,259 square miles and a population of about 26,000. For 1926 it reports a birth rate of 19.69 and a death rate of 11.50. Diphtheria has previously been one of the most prevalent of all contagious diseases occurring in the county, 75 cases with 10 deaths having been reported in 1925, and 31 cases with 3 deaths in 1926.

During the spring, arrangements were made to have all milk produced in Otero County tested and dairies scored, under the direction of the State Dairy Commission, according to the score issued by the U. S. Department of Agriculture. Of the 21 dairies in the county, samples from 14 showed a bacteria average not in excess of 100,000. The report concludes with a statement showing a balance of the receipts and disbursements of the health unit for 1926.

BOOKS RECEIVED

City Health Administration. Part I. Municipal Health Functions. Part II. The Organization and Administration of Sickness Preventive Functions. Part III. The Organization and Administration of Sickness Treatment Functions. By Carl E. McCombs, M.D. New York: Macmillan, 1927. 524 pp. Price, $5.50.

The Religion Called Behaviorism. By Dr. Louis Berman. New York: Boni & Liveright, 1927. 153 pp. Price, $1.75.

How to Make the Periodic Health Examination. By Eugene Lyman Fisk, M.D., and J. Ramser Crawford, M.D. New York: Macmillan, 1927. 393 pp. Price, $4.00.

Personal Health. By Emery R. Hayhurst, M.D., Ph.D. New York: McGraw-Hill, 1927. 279 pp. Price, $3.00.

Proceedings of Ninth Texas Water Works Short School. Texas Section Southwest Water Works Association assembled at Dallas, Texas, January 24–29, 1927. 397 pp. Price (paper cover only), $1.00.

Overcoming Tuberculosis (3rd edition revised). By Gerald B. Webb, M.D., and Charles T. Ryder, M.D. New York: Paul B. Hoeber, 1927. 80 pp. and Chart Sheets. Price, $2.00.

Captains of the Watch of Life and Death. By Mabel Osgood Wright. New York: Macmillan, 1927. 264 pp. Price, $2.50.

The Cause and Cure of Speech Disorders. A Text Book for Students and Teachers on Stuttering, Stammering and Voice Conditions. By James Sonnett Greene, M.D., and Emilie J. Wells, B.A. New York: Macmillan, 1927. 458 pp. Price, $4.50.

Heart and Athletics. By Dr. Felix Deutsch and Dr. Emil Kauf. St. Louis: Mosby, 1927. 187 pp. Price, $2.50.

Examination of Children by Clinical and Laboratory Methods. By Abraham Levinson, B.S., M.D. 2nd ed. St. Louis: Mosby, 1927. Price, $3.50.

Pyorrhœa Alveolaris. By F. St. J. Steadman, D.P.H. St. Louis: Mosby, 1927. 263 pp. Price, $9.25.

Practical Pedodontia or Juvenile Operative Dentistry and Public Health Dentistry. By Floyde Eddy Hogeboom, D.D.S. 2nd edition. St. Louis: Mosby, 1927. 108 pp. Price, $3.50.

The Human Body in Pictures. By Jacob Sarnoff, M.D. Brooklyn: Physicians & Surgeons Book Co., 1927. 120 pp. Price, $2.00.

Workers' Health and Safety: A Statistical Program. By Robert Morse Woodbury. New York: Macmillan, 1927. 205 pp. Price, $2.50.

Signs of Health in Childhood. A Picture of the Optimal Child. By Hugh Chaplin, M.D., and Edward A. Strecker, M.D. New York: American Child Health Association, 1927. 36 pp. Price, $.25.

The Nature of Man. By George A. Dorsey. New York: Harper, 1927. 82 pp. Price, $1.00.

Manual of Veterinary Bacteriology. By Raymond A. Kelser. Baltimore: Williams & Wilkins, 1927. 525 pp. Price, $5.50.

Cancer Control. Report of an International Symposium Held Under the Auspices of the American Society for the Control of Cancer. Lake Mohonk, N. Y., September 20–24, 1926. Chicago: Surgical Pub. Co., 1927. 336 pp. Price, $1.00.

Dental Education in the United States and Canada. Bulletin No. 19. By William J. Gies. New York: The Carnegie Foundation for the Advancement of Teaching, 1926. 692 pp. No charge.

Preventing Diphtheria in New York State. Published by the State Committee on Tuberculosis and Public Health. State Charities Aid Association, New York, 1927. 31 pp. Price, $.10.

American Agricultural Villages. By Edmund deS. Brunner, Gwendolyn S. Hughes and Marjorie Patten. New York: Doran, 1927. 326 pp. Price, $3.50.

A Handbook of Summer Camps. An Annual Survey. 4th ed. Boston: Porter Sargent, 1927. 872 pp.

PUBLIC HEALTH NOTES

LOS ANGELES HOLDS FIRST ANNUAL PUBLIC HEALTH INSTITUTE

LOS ANGELES COUNTY has just completed its first Annual Public Health Institute which marks an epoch in the history of public health in Southern California.

Small institutes have been given before for selected types of workers, with the assistance of the state and national tuberculosis associations, but the tremendous growth of public health work in Southern California has made necessary a broader program meeting the needs of all types of workers. The coming of Professor C.-E. A. Winslow, past President of the American Public Health Association, has inspired these workers and brought about a much closer feeling of coöperation with the national associations.

The practical effect of this spirit of fellowship has already been shown by the tentative formation of a group of 90 public health workers who have signed an agreement to petition the A.P.H.A. for a regional chapter.

In the opinion of many leaders in public health and social work in Los Angeles the visit of Professor Winslow has aroused great hopes of a permanent health foundation in Southern California. The need for trained personnel is urgent.

During the progress of the Institute W. F. Walker, D.P.H., Field Director of the Committee an Administrative Practice, of the A.P.H.A., through the assistance of J. L. Pomeroy, M.D., County Health Officer, was able to make a survey of the cities of Glendale and Burbank, both rapidly growing communities adjacent to the city of Los Angeles.

The Institute was carried out under the auspices of the Los Angeles County Public Health Association, Inc., formerly called the Los Angeles County Tuberculosis Association. It consisted of a series of ten technical lectures, beginning June 20 and closing July 8. Five hundred workers of all types attended. They came not only from Southern California but also from adjacent states. A series of round table conferences were held bringing into contact different groups—social workers, physicians, nurses and many lay people. In the evenings, a series of seven popular lectures were given at which various local persons assisted.

Among the speakers besides Professor Winslow, were J. L. Pomeroy, M.D., County Health Officer, Los Angeles County; Geo. H. Kress, M.D., Chairman County Health Department Medical Advisory Board; Sven Lokrantz, M.D., Director of the Department of Health and Corrective Physical Education, Los Angeles City School Board; George Parrish, M.D., Health Officer, Los Angeles City; Rupert Blue, M.D., Assistant Surgeon General, U. S. Public Health Service, and Walter M. Dickie, M.D., Secretary State Board of Health.

At the popular lecture section, five thousand leaders of selected groups received a special health message relating to local, state and national health problems. It is hoped to repeat the Institute each year with the assistance of some national leader in public health work. It will undoubtedly result not only in the formation of a strong technical group affiliated with the A.P.H.A., with a possible membership of 500, but in the likelihood of organizing a strong lay association under Los Angeles County Public Health Association's charter, with the further possibility of the development of a great medical and public health school.

Cleanliness Institute Launched—Cleanliness Institute, recently established by the Association of American Soap and Glycerine Producers, to join the ranks of those who have long been struggling to teach men, women and children in all walks of life and in all places the value of personal, community and industrial hygiene, was auspiciously launched at a dinner on June 23 at the Park Lane Hotel in New York City. The dinner was attended by 150 representatives of educational, health and social agencies. Their presence was a gesture of welcome to this new recruit to health promotion. The Commissioner of Health of the City of New York, Dr. Louis I. Harris, was among the speakers.

"No vaster task than the protection of public health faces us to-day," said Dr. Harris. "There is room for every new agency able and willing to spread the gospel of community, industrial and personal hygiene. We cannot fail to welcome such an agency with open arms. Cleanliness does have certain definite relations to health. If we could get all children to wash their hands before each meal, this alone would materially cut down their exposure to respiratory infections—and I use the term broadly to include not only pneumonia and kindred diseases but diphtheria as well."

Directing Cleanliness Institute's program is Roscoe C. Edlund, for six years executive head of the Hampden County Improvement League, Springfield, Mass., one-time assistant to the director of the Russell Sage Foundation, and before that secretary to the President of Cornell University. Its ducational consultant is Sally Lucas Jean. Dr. W. W. Peter has been retained as health consultant. Julia B. Tappan, formerly with the U. S. Bureau of Education, is director of the school department, and C. Margaret Munson, recently of Massachusetts Institute of Technology, is research librarian. Offices for the Institute have been opened at 45 East 17th Street, New York City.

It will operate for the present through three departments, research, information, and education, all of which have placed themselves at the disposal of the existing health and social agencies of the country as auxiliary aids. The Institute will not duplicate the work of any health and welfare agencies, but will seek only to strengthen their programs. Educational literature for use among school children is in preparation and will be ready for distribution in the fall.

In introducing Cleanliness Institute to the health and educational agencies, Sidney M. Colgate, chairman of the board, said:

"The funds contributed for this service came from manufacturers who make approximately 80 per cent of all the soap used in the United States. In business we are rivals and competitors, but in this movement we are one in a coöperative educational program. For the first year's work our industry has subscribed approximately $500,000 and we are not seeking any financial support from other sources.

"Our whole thought is to work as far as possible with and through existing agencies. Where our field touches health, we seek to work in harmony with and under the guidance of leaders in the health movement, and to assist wherever possible in their programs of public welfare. Wherever our field touches social service, education, home economics and other related activities, we shall be ready to coöperate to the fullest extent of our research and educational facilities."

Texas Elects New Health Officer—Dr. J. C. Anderson of Plainview, Texas, a member of the American Public Health Association, was unanimously elected State Health Officer of Texas by the new State Board of Health which met at Austin, June 18, and organized under the new Texas law. Dr. Anderson's term will expire in December, 1928, and his successors will then be elected every two years.

Dr. W. A. King, of San Antonio, a member of the American Public Health Association, was elected vice-chairman of the board, the law making the State Health Officer the chairman. Other members of the board are: Drs. C. M. Rosser of Dallas; Joseph Gilbert of Austin; H. W. Wright of Bowie; J. M. Frazier of Belton, and A. A. Ross of Lockhart.

New Jersey Appoints New State Director of Health—D. C. Bowen, who was made a Fellow of the A.P.H.A. in 1922, was elected State Director of Health of New Jersey by the State Board of Health on July 5. He has been Chief of the Bureau of Local Health Administration in the department, and State Epidemiologist. He will serve 4 years at a salary of $6,000.

Before his appointment in the State Health Department about a score of years ago, Mr. Bowen served as local health officer of Asbury Park, N. J., and was consultant in several state epidemics.

He succeeds Dr. Henry D. Costill of Trenton.

Health Officers and Public Health Nurses of New York State Confer—The Twenty-sixth Annual Conference of Health Officers and the Ninth Annual Conference of Public Health Nurses of the State of New York were held under the auspices of the New York State Department of Health at Saratoga Springs, N. Y., June 28, 29 and 30.

Dr. Matthias Nicoll, Jr., Commissioner of Health of New York, opened the conference. There were addresses by Governor Alfred E. Smith; Dr. Louis I. Harris, Commissioner of Health of New York City; and Dr. James E. Sadlier, President of New York State Medical Society.

At the Joint Conference of the Health Officers and Nurses there were papers by Veranus A. Moore, M.D.; Sanger Brown, 2d, M.D.; Edward McKernon; Jessie Ross Royer; William H. Park, M.D.; H. J. Shelley, M.D.; Daisy Van Dyke, M.D.; Joseph J. Endres; Hon. Francis D. Culkin; G. L. Brown, M.D.; and M. E. Gregg, M.D.

At the Conference of Health Officers there were papers by Professor H. N. Ogden and Leslie Frank.

At the Conference of Public Health Nurses there were papers by Margaret S. Brown, R.N.; Amelia H. Grant, R.N.; and Marie Swanson, R.N.

Tuberculosis Course to Negro Physicians—A postgraduate course in tuberculosis given for the Negro physicians of the Harlem Tuberculosis Institute of the New York Tuberculosis Association commenced on June 15. Eight lectures in all were given during June and July by Drs. Iago Galdston, George G. Ornstein, Foster Murray, Grant Thorburn, James Alexander Miller, Edward P. Eglee, and Catherine R. Kelley.

Pan American Sanitary Conference—The provisional program of the Eighth Pan American Sanitary Conference to be held at Lima, Peru, October 12 to 20, 1927, as prepared by the First Pan American Conference of National Directors of Health and by the Pan American Sanitary Bureau in coöperation with the organizing committee appointed by the government of Peru has been issued.

Among other subjects consideration is to be given to the modification of the Pan American Sanitary Code so that the interchange of information on laws and regulations pertaining to health and sanitation will be made obligatory. It is also proposed that arrangement for the Pan American Sanitary Bureau to prepare and publish standard forms for the reporting of deaths and cases of communicable disease and all other vital statistics be made immediately effective and that smallpox be added to the list of diseases which classify a port as infected.

The functions and duties of the Pan American Sanitary Bureau are to be defined and the future of the bureau will be discussed.

Another important topic for consideration will be the recommendation that there be included in the Sanitary Code an article asking that all signatory powers, for purposes of exportation, regard as narcotics those preparations that are so considered by the country to which they are exported.

Twenty Years' Fight Against Tuberculosis—The Twentieth Annual Meeting of the New York State Charities Aid Association and the State and Local Committees on Tuberculosis and Public Health was held in Syracuse, N. Y., June 1 and 2 to celebrate the twenty years of the fight against tuberculosis in up-state New York. Homer Folks, Secretary of the State Charities Aid Association suggested 11 things which are ready to be done in the public health movement in New York State and urged that the first 5 be done as speedily as possible.

1. The promotion of district and county health units and of full-time municipal health officers.
2. Special effort in the field of diseases of the heart.
3. A well-planned, sustained and comprehensive effort to reduce the prevalence of syphilis and gonorrhea.
4. More intensive work everywhere for the protection of maternity, infancy and early childhood.
5. A reasonably uniform and well-supervised medical examination of school children, and the actual correction of the defects discovered.
6. The application throughout the state of a few of the established principles of mental hygiene.
7. A really serious effort to see to it that the teeth of all the children in the State of New York are periodically cleaned, and that necessary fillings, extractions and repairs are made.
8. The application throughout the state of our present knowledge on the subject of nutrition.
9. Bringing before the entire adult population of the state at frequent intervals, in the simplest of language, such information as would cause them to seek early medical advice for operable cancer.
10. Periodical medical examination by physicians and sufficient opportunities for such special experience and training as would insure the largest value of such examinations.
11. Teaching the essentials of health, vigor and well-being by sound pedagogical methods to all the pupils and students in all schools and educational institutions.

Sir George Newman, K.C.B., M.D., Chief Medical Officer of the Ministry of Health of Great Britain was the guest of honor at the Anniversary Meeting.

PUBLIC HEALTH ADMINISTRATION

HENRY F. VAUGHAN, D.P.H.

The **Relations of the Physician to Public Health**—At a conference on public health held at the headquarters of the American Medical Association in Chicago, March 24, 1927, there were presented three papers upon the relationship of the private practitioners and the official and nonofficial health agencies. These papers, together with the discussions which followed their presentation, have been published in the July 2, 1927, issue of the *Journal of the American Medical Association.*

Dr. Arthur T. Holbrook of Milwaukee presents the situation from the standpoint of the physician in the small city. He characterizes the chief point of differentiation between the large and small town health organization as being one largely of personal contact. In the small community the health officer, if there be one, is intimately acquainted with the majority of the local physicians and develops a more personal contact with the other members of his profession.

After discussing the time-worn subject of friction, real or apparent, between the health officer and the practicing physician, Dr. Holbrook makes the significant statement that he has never met a public health officer who, if approached in a reasonable spirit, was not perfectly willing to coöperate with him in all fairness in the consideration of his patient. This author emphasizes three important points of contact between health workers and practicing physicians.

I. *The personal element in the relationship*—This means the selection of a properly qualified, local man at the head of the health department; the stimulation of interest in official and unofficial public health work on the part of practitioners and laymen; the coöperation of these men; the taking advantage of personal acquaintanceship with conditions and people in establishing a mutual, cordial and efficient relationship.

II. *The groundless fear that the public health administration will deprive deserving physicians of a competent livelihood*—This is a matter which simple fair-mindedness and common sense will settle among men who have a disinterested desire to coöperate.

III. *The fallacy of trying to define the exact and separate responsibilities of preventive and curative medicine*—There is no line of cleavage between these two. Of necessity they overlap, and where they run together each department must coöperate with the other. When the field of each becomes distinct, there the individual responsibility of each begins.

Surgeon General Hugh S. Cumming outlines the past and present relationship of public health and the medical profession, describing the orderly way in which the public health movement has progressed, and emphasizes the need of coöperation of the medical profession with other fields of endeavor as represented by the sanitary engineer, the laboratory scientist and others whose help is essential to the fulfilment of the health program. Dr. Cumming states that in his judgment it would be impossible for any group to delimit the respective fields of the private practitioner and the public health official in specific terms appropriate to the whole country. He further states that the people as a whole appreciate the value of and, in a large part, the method for obtaining health. They are naturally more or less indifferent as to how this end should be accomplished. The medical profession must appreciate this fact and aid in working out a solution.

Dr. Harlow Brooks of New York expresses himself most feelingly with regard to the interference of lay organizations employing untrained personnel with the obligations of the private practitioner and the trained man who is devoting his efforts to the field of public health.

Dr. Brooks makes the following significant statement:

> I was astonished the other day to read the statement of a worker in public health that the practicing medical profession was often found in conflict with public health activities. I cannot understand such a position unless the public health service in that instance was interested, as are some of the lay organizations, in activities basically contrary to the teachings of medical science and to the welfare of the public and its infirmities, just as some lay organizations advocate antivivisection, antivaccination, and various quack institutions and projects.

Dr. Brooks further suggests that through the state and county medical societies under the direction of the American Medical Association every physician be enlisted in the work of public health. This is truly a worthy recommendation, the fulfilment of which would do much to benefit health work throughout the land.

Survey of Fargo, N. D.—The Commonwealth Fund released, during the month of June, *Bulletin No. 5*, entitled, "Survey of Public Health Work in Fargo, North Dakota," by W. F. Walker, Dr.P.H., Field Director, American Public Health Association.

The Commonwealth Fund began in 1922 a 5-year demonstration of child health services in Fargo. During 1927, the final year of the demonstration, reports of these services will be published at frequent intervals.

In the bulletin referred to, Dr. Walker has applied the *Appraisal Form* to Fargo and discloses many points of interest. As the demonstration is one primarily engaged in child health activities, it is not surprising to find that the highest attainment on the score board will be found in that section of the health activities which pertain to the care of young children. Of a possible 75 points for prenatal service only 19 were scored in 1922; by 1925 a perfect score had been obtained, and this same condition continued through 1926.

The *Appraisal Form* also assigns 75 points to infant service and Fargo increased its score from 8 points in 1922 to 68 points in 1926. The score for the preschool child has been the maximum during the past four years of the demonstration. In the school health service, with a total of 150 points assignable to this activity, there has been an increase from 24 points in 1922 to 140 points in 1926.

It would appear that the lowest scores assigned to Fargo will be found in the venereal disease and tuberculosis activities where much of the control work has been left to the initiative of the private physician, and where the community has played only a small part.

The maximum score allowed for the total public health program in the *Appraisal Form* is 1,000 points. Of this possible maximum, Fargo scored 320 points in 1922, the first year of the demonstration. In 1923 the score was 562; in 1924 it was 724; in 1925 it had risen to 790; and in 1926 it had reached the high figure of 814.

Certified Milk Ordinances—At the Annual Meeting of the Certified Milk Producers' Association of America held in Washington during the month of May the following resolution was adopted. It is published at this time without comment as it is believed that this is an item of interest to the health administrator:

> The American Association of Medical Milk Commissions and the Certified Milk Producers' Association have had called to their attention a so-called model milk ordinance issued by the public health service of the Treasury Department, and whereas, this so-called ordinance has been issued apparently without calling into conference parties directly interested or with knowledge of all factors involved, and
>
> WHEREAS, we believe this ordinance contains clauses, innuendoes, and references directly contrary to economic and public interests, be it
>
> RESOLVED, that we urge the Public Health Service to reconsider this ordinance and give ample opportunity for presenting all sides to such an important question. That if such a model ordinance may seem desirable it may be of such form as to serve best the public health interests of this nation.

Social Hygiene in Ontario—The June, 1927, issue of *Social Health* reports the annual meeting of the Ontario Social Hygiene Council held on June 1. The chief item discussed was the endorsement of plans for a broader social hygiene campaign of education throughout Ontario to commence in the fall. Among the representatives present were a number of Ontario's outstanding health officers. Practically unanimously, they emphasized the importance of voluntary educational work if their own efforts were to be effective, and stressed the fact that an active campaign, in their own municipalities, under the direction of the local social hygiene councils in each case, seemed to be the most effective method of doing the work that is needed. They heartily endorsed the conception of a local social hygiene council as an educational auxiliary to assist the local health officer and expressed their own willingness to coöperate.

LABORATORY

C. C. Young

RELATIVE COSTS OF HOME-MADE AND PREPARED DEHYDRATED NUTRIENT AGAR

Professor Max Levine, Fellow A.P.H.A.
Iowa State College, Ames, Ia.

THE problem of culture media is frequently a vexing one, and the question naturally arises as to whether preparation from constituents might not be dispensed with, at least in some cases, in favor of commercially prepared dehydrated media. It is, of course, conceded that where the dehydrated products have been found to be satisfactory, their employment would be desirable from the standpoint of insuring greater uniformity of results in different laboratories. The question of expense, however, must also be carefully considered.

In our own laboratories the question arose with reference to special agar media, such as Endo, lead acetate and Russel double sugar, etc., which are generally employed in small quantities. In order to ascertain whether it would be more economical to use commercially prepared or home-made agar the following observations were made.

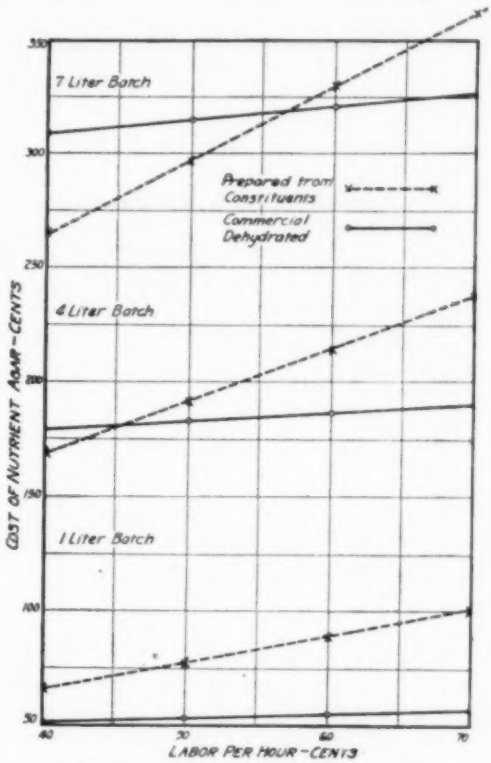
Batches of 1, 4, and 7 liters of nutrient agar were prepared as directed in *Standard Methods of Water Analysis*, of the American Public Health Association, and the time required was ascertained. Similar batches were prepared by dissolving the necessary quantities of dehydrated nutrient agar and the time noted.

The various batches of media were made by an assistant, Mrs. Margaret Schwarte, who has had three years' experience in culture media preparation. The average periods required for preparation of nutrient agar are indicated in Table I.

TABLE I
Time Required for Preparation of Nutrient Agar Employing the Dehydrated Product, and by Standard Methods from the Individual Constituents

	Dehydrated (Commercial)	Made from Constituents
1 liter batch (3 series)..	15 min.	64 min.
4 liter batch (3 series)..	23.5 min.	133 min.
7 liter batch (2 series)..	35.5 min.	191 min.

In Table II are shown the costs with labor at 40 to 70 cents per hour. In computing costs, material, labor and loss (due to filtration), were the only items considered. In the prepared dehydrated media the loss was insignificant, but in the home-made media, losses of from 3 to 8 per cent were observed. This was due principally to retention of some media in the filter. The results are also shown graphically in the accompanying plots.



The results may be summarized briefly as follows:

1. With help at 40 cents an hour (about $80 per month), the use of dehydrated media is

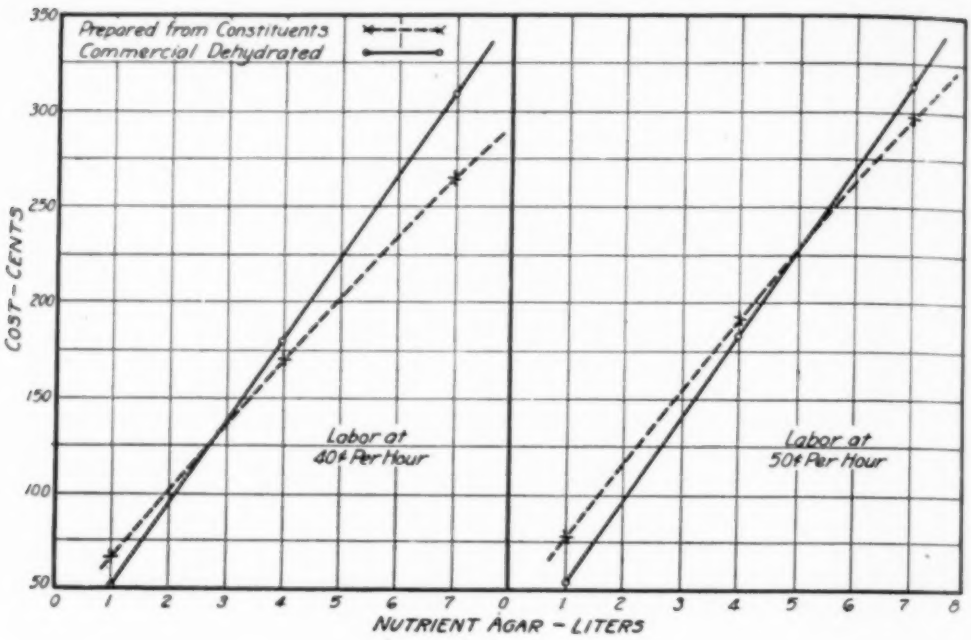


TABLE II

COST IN CENTS OF COMMERCIALLY PREPARED AND HOME-MADE NUTRIENT AGAR

	Commercially Dehydrated				Home-Made by Standard Methods			
	1 Liter							
Rate (labor)	40.	50.	60.	70.	40.	50.	60.	70.
Material	40.8	40.8	40.8	40.8	18.1	18.1	18.1	18.1
Labor	10.	12.5	15.	17.5	42.8	53.5	64.3	75.0
Loss	0.2	0.2	0.2	0.2	4.9	5.7	6.6	7.5
Cost * (1 liter)	51.0	53.5	56.0	58.5	65.8	77.3	89.0	100.6
	4 Liters							
Material	163.2	163.2	163.2	163.2	72.4	72.4	72.4	72.4
Labor	15.7	19.6	23.5	27.4	88.6	110.9	133.0	155.
Loss	0.1	0.1	0.1	0.1	7.2	8.2	9.2	10.2
Cost * (4 liters)	179.0	182.9	186.8	190.7	168.2	191.5	214.6	237.7
	7 Liters							
Material	285.6	285.6	285.6	285.6	126.7	126.7	126.7	126.7
Labor	23.7	29.6	35.5	41.5	127.2	159.0	191.0	222.3
Loss	0.1	0.1	0.1	0.1	10.2	11.3	12.7	14.0
Cost * (7 liters)	309.4	315.3	321.2	327.2	264.1	297.0	330.4	363.0

* Costs figured on basis of Difco products.

more economical if batches of less than 2.5 liters are prepared, but less economical than home-made media if larger quantities are made.

2. As the cost of labor goes up it becomes more economical to employ dehydrated media. Thus at 50 cents an hour (about $100 per month), the costs of dehydrated and home-made nutrient agar are the same for a batch of 5.2 liters, and at 60 cents an hour ($120 per month), a batch of 7.8 liters would have to be prepared to equalize costs. For quantities less than those specified, dehydrated media are more economical.

3. At all labor rates considered, it was more economical to use dehydrated media when batches of less than 2.5 liters were prepared.

ACKNOWLEDGMENT: The writer wishes to express his appreciation to Mrs. Margaret Schwarte for assistance in obtaining the data employed in the preparation of this paper.

VITAL STATISTICS

LOUIS I. DUBLIN, PH.D.

Birth and Death Rates in the United States Birth Registration Area, 1926—There were 1,597,903 births in the United States birth registration area in 1926. The birth rate for the 28 states reporting decreased from 21.1 in 1925 to 20.1 in 1926. Florida, with the highest birth rate in the country (26.4 per 1,000 population) is the only state which showed an increase over 1925, while Montana (22.6) was the only state to maintain a rate equal to the preceding year. The lowest rate (14.2) was in Montana which declined from 15.2 in 1925.

There were 961,752 deaths at all ages in 1926 and a death rate of 12.1 compared with 11.7 for 1925. Nebraska (9.0) and Wyoming (8.1) were the only states in which the death rate decreased, while California (13.6), Minnesota (9.7), and Oregon (11.2) had the same rates in 1925. The highest death rate was 15.3 for Florida, and the lowest 7.8 for Montana. Infant mortality rates were also higher in 1926, 72.8 in 28 states during 1926 as against 71.5 in 1925. Arizona with 119.5 and Delaware 92.9 had the highest rates and Oregon the lowest, 51.6. For 27 of the 48 cities with 100,000 or more population the infant mortality rates were higher than for the previous year. The highest 1926 rate was 107.4 in Richmond, Va., and the lowest 38.7 for Portland, Ore.—*Summary of Provisional Birth, Death and Infant Mortality Figures in the Birth Registration Area, 1926* (Press Release), Department of Commerce.

Size of American Families in the Eighteenth Century—The annual rate of increase of the American population near the end of the Eighteenth Century was about 3 per cent per annum. The proportion of total births in two successive generations at that time (resulting at a rate of continuous compounding of interest at 3 per cent for 28 years) was 2.3. This corresponds to a family of 7.8 children per married woman or, assuming that 7 per cent of marriages are naturally sterile, 8.3 children per mother.

The exponential constant .03134 of the Pearl-Reed formula, representing the incipient or unfettered rate of interest such as corresponds to the free expansion of a small nucleus of population in a wide territory before the pressure of the boundaries becomes felt, is of the nature of a biological constant, characteristic of the American population. The biological nature of this upper limit of the rate of increase is seen when the fertility of women, corresponding to this rate of increase, is expressed in terms of the average interval between births. The average interval between births, corresponding to the limiting rate of increase, is found to be 13¼ months in the 15–19 age group, in which fertility is at its maximum. This seems to be the fundamental limiting factor of human population increase.

This upper limit of unfettered reproductive power is shown to exceed the fecundity of 1920 in the ratio of about two to one. The lower limit of fecundity, corresponding to an ultimate state of stationary population, under present conditions of mortality is 86 per cent of the present (1920). Thus according to the 1920 life table, present conditions of fecundity allow a 14 per cent margin above the stationary condition. This margin will, however, be increased to some degree by improvements in mortality rates.

The mean length of life of one generation, which is about 28 years, is not greatly affected by changes in the life table or in the age schedule of fecundity.—Alfred J. Lotka, *J. Am. Stat. Assn.*, *22*:154–170 (June), 1926.

The Burden of the Handicapped—At a conservative estimate there are more than a million persons in the United States who are social burdens because they are seriously handicapped or wholly incapacitated as wage earners by various physical or mental impairments. According to recent statistics there are about 75,000 blind; 45,000 deaf and dumb; over 268,000 mentally diseased, nearly 9,000 epileptics and nearly 43,000 feebleminded confined in institutions; about 700,000 persons crippled to an ex-

tent interfering more or less seriously with their earning capacity, and 78,000 paupers in institutions, most of whom, however, are old people.

It is impossible to form any accurate estimate of the cost of all these impairments to the community. The National Committee of Mental Hygiene estimates very conservatively that the economic loss resulting from mental disease amounts to three hundred million dollars annually. In 1923, 50 of the 54 state institutions reported a total of 36,713 feebleminded under their care, exclusive of those on parole. These required a staff of over 5,500 physicians, nurses and attendants, an average of one employe per 6.6 feebleminded persons. The property tied up in these institutions represented a capital of $41,486,092 or $1,227 per patient, and the cost of maintenance was $10,457,616 or $310 per patient for 1922. State institutions for epileptics numbered 10, of which 9 reported a population of 7,755 patients. The personnel of attending physicians, nurses, etc., corresponds to 6.0 patients per employe. The value of capital tied up in these institutions is $10,519,353 and the annual cost of maintenance for 7 of the institutions $2,104,371 or $324 yearly per patient. In addition, other special institutions and almshouses shelter and care for many mentally incompetent persons.

The total cost of maintaining the blind must be over 37 million dollars yearly, of which probably not more than one-fifth is earned by the blind themselves. The average earnings of the blind who answered questionnaires on this point were $560 annually for males above age 10 and $300 for females; these figures relate only to those who are gainfully employed. The deaf mutes, as a class, are practically self supporting or nearly so. About 60 per cent of the males and about 18 per cent of the females are employed at average annual earnings for the males of about $1,000 and $500 for the females. The amount of losses from the cripples is difficult to estimate but it is undoubtedly enormous even though many of them have only minor injuries which but slightly reduce their earning capacity.—*Stat. Bull. Met. Life Ins. Co.*, 8:2-5 (May), 1927.

Infant Mortality in Cincinnati—The total infant mortality rate for 1925 was 77 per 1,000 but for infants having actual residence in Cincinnati it was only 70. Of the 643 infant deaths studied, 541 were white, 101 were colored, only 57 had foreign born fathers and 49 foreign born mothers. Forty-one per cent, or 266, of the 643 infant deaths occurred within the first two weeks of life; 110 of the remaining 377 deaths were due to respiratory diseases and 133 to intestinal troubles. The stillbirth death rate was 10.2 for colored infants, 4.2 for white infants. About 40 per cent of the total births (8,381) occurred in hospitals. The average density was 17.1 for the 13 wards having an infant death rate below the average for the city, but for the 13 wards having an infant death rate above the average it was 61.6.

The birth rate and stillbirth rates have remained comparatively stable for the past 5 years. The infant mortality rate has varied from 81 in 1920 to 74 in 1921 and 1922, back to 80 in both 1923 and 1924, and 77 in 1925.—*Study of Infant Mortality in Cincinnati*, 1925, Child Hygiene Council of Cincinnati Public Health Federation, Apr., 1927.

Public Health of Palestine—It is evident from the annual report of 1925 of the Health Department of Palestine and Transjordan that public health there was good. The natural increase in population in Palestine by excess of births over deaths was more than 16,000, but the infantile mortality rate remains at about 180 per 1,000. The increasing number of maternity and infant welfare centers is helping to reduce this high rate. There was no serious epidemic in 1925 and no case of plague, cholera or smallpox. Measles was less prevalent than in 1924 but still accounted for the greatest number of deaths. Seven hundred cases of typhoid and paratyphoid fever were reported, mainly among recent immigrants, with 60 deaths; this abnormal incidence is attributable partly to the water shortage in the Jerusalem district.

Further progress is recorded in the drainage of swamps and other land reclamation work, and the summer epidemics of benign tertian malaria have become negligible during the past few years.

The main outbreak has been of malignant tertian malaria in the autumn. Measures to check the spread of tuberculosis are being developed by the government and voluntary organizations. The facilities for treatment of trachoma and other diseases of the eye have been still further developed in close coöperation with the Ophthalmic Hospital of St. John of Jerusalem. Medical officers of the government and nurses are trained there and sent out to various districts to conduct ophthalmic clinics in government hospitals and dispensaries. Ophthalmic treatment is given by the school

nurse or medical orderly in the schools where 69 per cent of the pupils suffer from trachoma.

There were 481 doctors in Palestine at the end of 1924 and more than 130 arrived in 1925. Voluntary hospitals dealt with more than 26,000 in-patients. In the government laboratories, 23,000 routine examinations were made. Nearly 1,000 persons received treatment against rabies in dogs and other animals.

There were 33,831 Jewish immigrants to Palestine during the year, of whom 16,893 came from Poland, 6,529 from Russia, 2,166 from Roumania, 1,747 from Lithuania, 963 from Germany, 749 from Turkey, 723 from Bulgaria, 570 from the United States, 460 from Latvia, 427 from Austria. This Jewish immigration was nearly three times as large as that of 1924.—*Lancet*, 1:1059 (May 14), 1927.

The **Homicide Record of 1926**—The murder death rate for 1926 was 9.9 per 100,000 as against 11.0 for 1925, in 28 cities in the United States with an aggregate population of nearly 23,000,000. Assuming a slightly modified reduction for the whole country it is probably not far from the truth to estimate that we have at the present time about 12,000 deaths from murder in this country during the course of the year.

The combined homicide death rate for 118 American cities in 1926 was 10.1 as compared with 10.5 for the previous year. The homicide death rate increased in 37 cities and either remained stationary or declined in 81 cities, and no homicides were reported in 18 cities. The highest rate for the year was in Jacksonville, Fla., with a rate of 75.9 for 1926 and 72.3 for 1925. High rates were also reported in Tampa, Fla. (67.5 in 1926 and 45.4 in 1925), and Birmingham, Ala. (58.5 in 1926 and 54.5 in 1925). There were slight declines in Chicago (16.7 in 1926 and 18.8 in 1925), in New York City from 6.4 in 1925 to 5.7 in 1926, and in Philadelphia (8.6 in 1926 and 9.7 in 1925).

The author believes that capital punishment should be abolished, for it unquestionably increases the difficulties of a fair trial and the selection of competent juries. Capital punishment is a relic of barbarism and is not a deterrent in the states in which it is enforced for these states, generally speaking, have a higher murder death rate than the states in which it is not enforced.—Frederick L. Hoffman, *Spectator*, 118:11 and 35 (June 2), 1927.

Age and Sex Incidence of Typhoid Fever—A study by the Metropolitan Life Insurance Company of the case incidence, mortality and lethality from typhoid fever in New Jersey, 1920–1924, gives some interesting figures as to the relation of age to the disease. The age period of greater liability to infection is 10 to 14 years but the period registering the highest death rate is 15–19 years. In all age groups between 15 and 55 the actual typhoid death rate is higher than during the period of maximum occurrence in the age group 10–14.

In the 3,980 cases studied the case incidence rose from 11.4 per 100,000 among children under 5 to a maximum of 40.1 in the age group 10–14, and then recorded a continuous decline. The case fatality rate, however, increased steadily with age reaching a maximum of 50 deaths per 100 cases in old age. In all groups, except 55–64 years, typhoid fever occurs more frequently among males than among females. Between 15 and 54 the death rate is also higher for males. Beyond age 55 and under 15 the case fatality rate of females exceeds that of males.—*Stat. Bull. Met. Life Ins. Co.*, 8:7–8 (May), 1927.

Vital Statistics of Berlin in 1926—For the years 1923, 1924 and 1925 a slow increase in the number of living births was observable; in 1926 there was a slight decrease over the figures for the previous year (45,082 as against 47,071). The figures for the two years are accordingly 11.7 and 11.0 per 1,000 of population. Compared with the number of living births in 1923 (76,700), the figures for 1926 indicate a decrease for 1926 of about 40 per cent.

The number of deaths has decreased slightly; namely, from 45,651 in 1925 to 45,371 in 1926. The death rate per 1,000 of population dropped from 11.3 in 1925 to 11.1 in 1926. The downward trend observable in the death rate of Berlin since 1922 did not suffer, therefore, any interruption in 1926.

Although for the year 1925, as a whole, there was an excess of births over deaths amounting to 1,420, in the last three months of the year the reverse was true: the number of deaths exceeded the number of births. Only during the months from May to September, 1926, was there an excess of births over deaths, amounting to 1,054, so that the excess of deaths over births for the entire year amounted to 289.—*J. A. M. A.*, 88:1918 (June 11), 1927.

PUBLIC HEALTH ENGINEERING

ARTHUR P. MILLER, C.E.

Rural Anti-Mosquito Measures—The author in August, 1916, advised that efficient anti-mosquito measures be carried out in a given trial area, and records be kept of cost of operations and of increased efficiency among the laboring population, as a means of obtaining results that would induce coöperation of employes of labor throughout the island in a comprehensive scheme of mosquito destruction. The objectives of such a study under government control are the determination of the relative and practical value of various control measures which are outlined. He thinks that margins of ponds must be kept free of grass and aquatic vegetation, as otherwise the local fish used will not be effective. Ducks are stated to be just as effective as fish in destroying mosquito larvae, some experiments along that line with results obtained being reported in the *Journal of Tropical Medicine and Hygiene.* —W. Machlaclan McDonald, *Collected Papers on Tropical Diseases,* 1926, Govt. Printing Office, Antigua, Leeward Islands, B. W. I. Abstr. by J. A. LePrince.

San Francisco Makes Fills with Residue from Destructor—This article deals with the present methods of refuse disposal in San Francisco. Except for the segregation of garbage by hotels and restaurants, all refuse is collected by private scavengers whose only responsibility to the city is in the form of permit which gives the Board of Health control over sanitary conditions. The scavengers are paid directly by the householders, based upon an elaborate schedule formulated and approved by the city authorities. A total of about 600 tons of refuse is collected daily by the scavengers, and in addition, hog raisers buy and collect from the hotels and restaurants about 125 to 130 tons of garbage each day.

The 600 tons of refuse collected by the scavengers are all delivered to the Thackeray destructor, now about 30 years old, which has a capacity of 400 tons per 24 hours. Since there consequently is extreme congestion at the plant, 500 tons are crowded through the destructor; about 25 per cent of which comes out partly unburned. About 100 tons of the refuse is burned daily at the destructor yard. Due to the greatly overloaded condition of the old destructor and its consequent inefficiency, constituting a neighborhood nuisance, there is vigorous agitation at present for some better disposal system and the Board of Supervisors is giving the matter attention.

The ashes, unburned garbage, etc., amounting from 250 to 270 tons per day, including 15 to 20 tons of ashes and material burned in the yard, are hauled away in railroad cars and used to fill lowlands along the railroad track on the Bay Shore south of the city. The contents of the cars are loaded into dump carts in which it is delivered to the point where the face of the fill is being extended. The preferred method of loading the dump carts is to rake the refuse down into the cart from the car. It usually takes a crew of 10 or 12 men on the dump working 8 to 10 hours a day to take care of the daily delivery from the destructor. The number of horse carts ranges from 7 to 10. The cost of the railroad switching charge and horses and carts averages $750 per month. Only residue from the destructor is used in making the fills and no complaint of any nuisance in connection with the fills has been made. The present fill is about 15 acres in area and averages 6 feet deep.

Each scavenger pays $1 per ton for all refuse delivered to the destructor. This payment goes to the Scavenger's Protective Union which operates the plant and is charged with the responsibility of effecting sanitary disposal within this price. As of late the costs have somewhat exceeded the rate, the scavengers may have to charge a little more per ton for disposal.—Anon., *Eng. News-Rec.*, 97:469 (Sept. 16), 1926. Abstr. by E. C. Sullivan.

Malaria at the Gantt Impounded Area, Covington County, Ala.—This article is well illustrated by photographs, maps and charts and covers a period of a year previous to impounding of water and two years subsequently. The

lake was narrow and about 9 miles long, thus largely reducing the usual beneficial effect of wave action. Previous to impounding of water there was very little malaria in the area near the lake, though a few cases were seen at the construction camp, and after impounding there were 238 cases in one season in a population of 742. Nearly all of the cases were within a mile of the edge of the lake, and the density of malaria was in direct proportion to the density of Anopheles quadrimaculatus.

The brush and trees in the lake bed were slashed, left where they fell and later flooded. Suitable adult Anopheles catching stations were selected, and Anopheles counts made periodically. Large numbers of Anopheles quadrimaculatus were found during the months of August and September, and in general these adults were numerous near the uncleared sections of the lake and relatively scarce near that portion of the lake that was properly cleared of debris and floatage. Lowering of the lake level sufficiently to strand floatage and to remove water from the slashed over area terminated Anopheles production and largely reduced malaria.

The writer is of the opinion that in the United States during the past 100 years the gradual elimination of rural mill ponds has been an important factor in the malaria reduction that has taken place over a great part of the country.

In the area under observation, the flight range and other habits of Anopheles quadrimaculatus were found to be similar to those determined by previous observers in North Carolina and South Carolina.—W. G. Smillie, *Am. J. Hyg.*, 7:40 (Jan.), 1927. Abstr. by J. A. LePrince.

Newark's New Smoke Ordinance—Newark, N. J., is situated in close proximity to the anthracite coal regions of Pennsylvania. The use of hard coal in this city has been large, and the atmosphere has usually been clear and uncontaminated with smoke. During the strike in the hard coal fields in the winter of 1925–1926, the use of soft coal in Newark immediately increased and is still being used in spite of the availability of hard coal at this time. Defects in the old smoke ordinance were many and a new one has been drawn up and approved as of May 4, 1926, in order to overcome the deficiencies of the former ordinance.

The new ordinance creates a bureau of smoke abatement with the necessary personnel. According to Section 1 of the new ordinance dense smoke may be produced for a period of not more than 6 minutes in any one hour. Section 2 makes it unlawful for any locomotive to emit dense smoke, and further prohibits firing of the locomotive when it is not in motion. Six minutes are allowed, however, as the time for the making of a fresh fire in the locomotive fire boxes.

The ordinance further provides that any person or persons obstructing or interfering with smoke inspectors in the performance of their duty should be liable to a penalty. The standard in use is the Ringelman Smoke Chart, and any smoke comparable with grade 3 or higher is considered to be dense. The penalty for the violation of the smoke ordinance is set at $100 for each and every day that the ordinance is violated. The effects of this ordinance appear to already become apparent in the clarification of the atmosphere in the city of Newark.—Anon., *Monthly Bulletin*, Dept. of Health, Newark, N. J., 9:1 (Oct.), 1926. Abstr. by Leonard Greenburg.

Administrative and Engineering Work in the Collection and Disposal of Garbage. A Review of the Problem—This paper describes briefly some of the administrative and engineering problems in projects for the collection and disposal of garbage. Technical literature occasionally states that the disposal of garbage has not kept pace with other sanitary engineering works. Such statements are generally coupled with the suggestion that closer adherence to competent technical guidance would greatly improve the results. This is a sound suggestion. Some of the troubles are inherent in the situation and will yield finally only to general public opinion.

The paper outlines relative costs for garbage collection and disposal and other sanitary engineering works. Typical procedures for the acquisition of garbage disposal plants are discussed, recent contracts and specifications outlined, and engineering items in garbage disposal listed.—Samuel A. Greeley, *Proc. A. S. C. E.*, Oct., 1926, pp. 1642–1678. Abstr. by L. D. Mars.

How Tastes and Odors in Water Are Eliminated—The writer stresses the importance of skilled supervision and then proceeds to discuss the various causes which may contribute offensive tastes and odors. The most common ones are gas house wastes, by-product coke furnaces, wood distillation plants and oil refineries. In some cases chlorination reduces

the trouble; in others it intensifies it tenfold. The tastes and odors in swampy and peaty waters are usually removed by aeration. The writer refers to the *Manual of Water Works Practice* as giving the lethal dose of copper sulphate for destroying algae. He also gives a table which shows the effect of copper sulphate upon various fish. Early dosing is recommended in order to avoid the odors resulting from the disintegration of great masses of algae. The article describes the characteristic odors common to many diatoms, blue green and green algae. The article also cites a legal case in which a water company was restrained from collecting its fees because the water delivered had an offensive taste and odor. The court laid down the rule that a water delivered to the consumer must be free from tastes or odors which make it unfit for domestic use.—Major Francis E. Daniels, *Water Works Eng.*, 80:17 and 38 (Jan. 5), 1927. Abstr. by Frank Raab.

Water Softening Plant at McKees Rocks, Pa.—The Ohio Valley Water Company has just put into operation the largest Zeolite water-softening plant in the world and the first, so far as is known, to be used in America, to supply an entire community with softened water.

The article discusses the character of the water supply, the troubles, and the preliminary studies running through a period of three years. It also describes the new plant and gives a fairly complete description of the operating methods and schedule of operation.—H. C. Kneeland, *Am. City*, 35:521 (Oct.), 1926. Abstr. by A. H. Fletcher.

Iron Removal Plant at Selma, Ala.—This article describes the 1.5 m.g.d. iron removal plant recently constructed by the City of Selma, Ala., to serve a population of 18,000.

The source of supply is wells 450 feet deep, the principal one of which is pumped by a motor driven pump. The water as pumped is clear but contains 18 p.p.m. of free CO_2 and 2 p.p.m. of iron, which latter soon oxidizes and discolors the water.

Aeration, sedimentation, coagulation and rapid sand filtration are provided in the new plant to properly treat the supply. These various devices are briefly described. The plant is so arranged that the chemical treatment including mixing and coagulation may be by-passed if found advisable. Three ½ m.g. rapid sand filter units of reinforced concrete and completely equipped are provided. The filtering material consists of 18 inches of graded gravel and 30 inches of sand, effective size 0.37 mm. and uniformity coefficient of 1.7.

Results of operation show that the free CO_2 was reduced to 3 p.p.m. and the iron to 0.25 p.p.m. using aeration, sedimentation and filtration only. The pH of the treated water was 8.6. This being considered a satisfactory effluent coagulation is not regularly employed. However, during operation with lime at the rate of 45 pounds per million gallons the CO_2 was completely removed and only 0.06 p.p.m. of iron remained in the effluent. The plant cost $65,000.—J. A. Fulkman and E. J. Taylor, *J. Am. Water Works Assn.*, 17:69 (Jan.), 1927. Abstr. by J. K. Hoskins.

Rôle of Iron in the Activated Sludge Process—The author reviews the work of Otto Warburg of the Kaiser Wilhelm Institute for Biology in Berlin, L. Horowitz-Wlassowa of the Hygienic Laboratory of the Institute of Medicine in Petrograd, of Dallyn and Delaporte of Toronto, Canada, and of the Maryland State Department of Health, to show that iron may play an important part in oxidation reactions and consequently in the treatment of sewage by the activated sludge process.

Warburg states that oxidation of organic material through molecular oxygen rarely takes place. He suggests that in the cycle of oxygen reactions molecular oxygen reacts with bivalent iron, forming iron in a higher state of oxidation which in turn reacts with the organic substances and is again reduced to bivalent iron. A diagram showing the activation of oxidation by iron in the presence of charcoal, from work done by Warburg, is presented.

The Maryland laboratory experiments indicate that the oxidation of raw sewage, in the presence of iron, without the addition of any activated sludge, and in the presence of an oxygen supply varying between 0.25 to 1 cu. ft. per gal., was reasonably successful.

By the addition of iron or aluminum salts in the activated sludge process, Horowitz-Wlassowa has found it possible to reduce the percentage of activated sludge returned to the incoming sewage to approximately 2 per cent instead of the usual 10 to 25 per cent of sludge by volume which is the usual American practice.

The author states that both hypothetical and experimental data so far available are inadequate but believes that much is to be gained by further study of the significance of iron, or similar compounds, in the activated sludge

process. He says, "There is some theoretical and some practical foundation for assuming that iron may be helpful both as an oxygen carrier and as an absorbent and coagulant. In addition, thought should be directed to the function as 'catalyst' which the iron compounds most probably perform."—Abel Wolman, *Eng. News-Rec.*, 98:202 (Feb. 3), 1927. Abstr. by T. C. Schaetzle.

Odor, **Fly and Other Nuisance Control Methods at Schenectady, N. Y.**—This paper deals with the necessity of controlling such nuisances from sewage treatment plants as would result in the filing of formal complaint against the municipality operating such an installation. Under the heading of odor control, the paper explains the various control measures used during routine operation of the various features of the sewage works in question. The final results of an interesting chlorination study carried out at Schenectady are given and indicate that the application of this chemical to both raw sewage and tank effluent will aid in controlling odors. Various methods for controlling the development of the filter flies are given. Results of another chlorination study carried out on the filters indicate that chlorine application serves as an aid in fly control. The paper presents several methods for controlling the rats and mosquitoes that may become troublesome about a sewage works.—Morris M. Cohn. Paper presented at the Ninth Texas Water Works Short School, Dallas, Tex., Jan. 24–29, 1927. Abstr. by V. M. Ehlers.

Special **Investigation of Stream Pollution by Beaver**—An investigation of the effect upon the public water supply of Helena, Mont., of the presence of beaver on the watershed was made by the author in coöperation with the Helena Water Department and the Montana Fish and Game Commission. Two full grown beavers, trapped on one of the streams tributary to Helena's water supply, were kept in a pent house at the State Board of Health Building and fed on their natural food, *i.e.*, aspen and willow bark, etc. Samples of fresh feces were collected on each of 3 successive days, diluted with tap water and the mixture examined for *B. coli*. Gas yields of 30 to 40 per cent were obtained in 24 hours in every case; litmus lactose plates made from this broth all gave positive results, and lactose broth tubes inoculated with typical colonies all yielded gas. Controls on tap water alone were all negative.

Routine laboratory examinations of samples of water from two points on N. Fork of Little Boulder Creek at Boulder, Mont., a stream on which beaver were plentiful but no other sources of contamination were found, gave positive results for contamination indicating that these animals were responsible. One sample from Little Boulder Creek taken 9 miles below the beaver dams, gave negative results. On Bozeman Creek, at Bozeman, Mont., no difference was noted in samples taken above and below the beaver dams.

It is concluded that the presence of beaver apparently affects the routine laboratory tests as conducted at the water laboratory.

(Abstractor's Note: In a letter transmitting this report to Dr. L. L. Lumsden of the U. S. Public Health Service, H. B. Foote, Director of the Division of Water and Sewage, Montana State Board of Health, states that feces from moose in Yellowstone National Park gave negative results when tested for *B. coli*.)—H. C. Cashmore, Asst. Engr., Div. of Water and Sewage, State Board of Health, Helena, Mont. Manuscript. Abstr. by D. E. Kepner.

Recent Developments in Sewage Chlorination—*Disinfection:* Contact periods between chlorine on sewage is of little if any value. Effective disinfection is secured instantaneously when residual chlorine is maintained in the treated sewage. By the orthotolidin test only 0.2 to 0.5 p.p.m. at the end of the 10 minutes' contact need be maintained. A positive test for residual chlorine is equally as satisfactory an indication of efficiency as disclosed by bacterial tests. The quantity of chlorine required is determined by "chlorine demand," which parallels the oxygen demand to a great extent. The chlorine demand varies markedly during the year for any particular sewage. The dosage should be varied to meet the conditions existing—each sewage differing in demand. The demand is high in warm weather and but half or less than half in cold weather. When residual is maintained, solids such as pass through inefficient settling tanks, are effectively penetrated by the chlorine and disinfected satisfactorily. For highest efficiency and greatest chlorine economy with simultaneous efficiency of disinfection, residual chlorine tests should be made several times during the day.

Pre-chlorination: Application of chlorine at inlet of tanks rather than to the effluent offers the following advantages: (1) Less chlorine is required to produce a satisfactory disinfected

tank effluent; (2) odors are reduced or eliminated if desired; (3) flow chambers are kept in fresh condition; (4) no contact chambers are required beyond tank; (5) the tank acts as a "balance-wheel," smoothing out fluctuation of flow and the quality of sewage; (6) oxygen demand is reduced; (7) "foaming" of tank is prevented or reduced.

Odor Control: Chlorine dosage considerably less than that required to produce residual chlorine will retard odor production or reduce that already existing; for this purpose chlorine should be applied to tank influent and very probably better yet to the sewer proper at some distance ahead of the plant. The dosage required will vary with the sewage treated and local conditions varying between 4 and 15 p.p.m.

Fly Nuisance and Filter Pooling: The Psychoda fly can be controlled and essentially eliminated by intermittent application of heavy chlorine dosages (20 to 30 p.p.m.) to insure 3 p.p.m. residual chlorine at nozzles. Chlorine is applied at syphon chamber and continued for a sufficient period to loosen the organic film on the surface, and subsequent applications are made at 14-day intervals during the fly season. Duration of application is 12 hours to night sewage flow. Pooling of beds is eliminated and cleansing of piping and nozzles is simultaneously secured. The spray washes the disintegrated film from the bed, and larvae are drowned. Improvement of the normal filter efficiency follows chlorine application within a few days.

Oxygen Demand Reduction: Chlorine combines with a portion of the organic matter in solution in sewage to effect a reduction in the demand of oxygen (5 day B.O.D.). The reduction is permanent for as long as 12 days, beyond which time tests were not carried further. All samples were reinoculated with the unchlorinated sewage after preparing dilutions for the incubator. The B.O.D. reduction varies considerably, depending upon the quality of the effluent ahead of chlorination. Reduction to the extent of 33 per cent and higher is common. Reductions of 60 per cent have been recorded. Certain investigators report reduction of oxygen demand of activated sludge effluent with 2 p.p.m. chlorine from 35 p.p.m. to 22 p.p.m., *i.e.*, 40 per cent approximately. No contact period is required. Chlorine then should apply to fill many existing deficiencies in plant efficiency at certain periods. To prevent nuisance in streams when chlorinating may result in the necessity of less diluting waters to insure stability.

Foaming Imhoff Tanks: Foaming has been relieved in instances where chlorine has been utilized. The chlorine was applied to the raw influent continuously in one case and the results were satisfactory and foaming ceased. The dosage was at first 20 p.p.m. being reduced later to 6 p.p.m. and finally to 3 p.p.m.

Cost of Chlorination: Cost of chlorination may be reduced materially when frequent tests for residual chlorine are made. Night sewage requires considerably less than the day sewage. A relatively new type of chlorine shipment has entered the sanitary field. Purchase of chlorine in "multiple unit tank car" shipments materially reduces the cost of chlorine. Chlorine is shipped in 1-ton containers on a special car. The containers themselves travel without freight being charged in either direction. Scientific control of application and reduced cost of chlorine should bring about a worth-while reduction on overall cost of sewage disinfection.—L. H. Enslow. Paper presented at the Ninth Texas Water Works Short School, Dallas, Tex., Jan. 24–29, 1927. Abstr. by V. M. Ehlers.

How Industrial Pollution Affects Water Supplies—The City of Dunbar, W. Va., secures its water supply from the Kanawha River which in normal times is a delightful green body of water. During the dry hot season of 1925 and 1926 the water turned to a blackish brown in color. Objectionable taste and odor accompanied the color which could not be removed by the water filtration plant.

At first the color and odor were attributed to vegetation and algae but upon careful investigation by the state health authorities it was learned that it was due to waste discharged into the river by a paper mill and a tannery located at a distance of 50 miles up stream. The odors, taste and color disappeared with the coming of the fall rains.

The rest of the article is an appeal to the people of West Virginia, urging a concerted effort to inaugurate a sane program for protecting the beautiful streams of West Virginia against pollution without causing undue hardships upon the industries.—Alvin D. McCormick, *Water Works Eng.*, 80:85 (Jan. 19), 1927. Abstr. by H. V. Pedersen.

INDUSTRIAL HYGIENE

EMERY R. HAYHURST, M.D., AND LEONARD GREENBURG, PH.D

Medical **Examinations and Welfare in English Cotton Factories**—The calling in of the doctor to testify to the physical suitability of children and young persons for working in cotton mills was one of the early phases of a long series of efforts to improve the well-being of textile operatives, and what we know in England as "welfare" is probably the most important of the later phases. Welfare departments are now becoming a prominent feature in cotton factory administration, and where they are in vogue it is proving to be a distinct advantage to place in the hands of the welfare supervisor the first selection of those under 16 years of age, and in some cases of those under 18 years of age, who seek employment. The certifying surgeon is brought into close touch with this official when visiting the factory to carry out his own particular part in the selective process.

Indeed this association between medicine and welfare is proving of such value at many cotton factories that the respective managements have deemed it an advantage to make special arrangements with the doctor to extend his functions beyond the statutory limit.

The author discusses medical examinations in some detail as well as the conditions in cotton manufacturing processes which tend to affect adversely the health of the operatives.

Industrial welfare, as we know it in England, is being well taken up by Lancashire cotton firms; indeed the two large amalgamations in the spinning branch of the industry have both adopted it as a definite part of their administrative policy. One of these bodies has 30 well trained lady supervisors allocated amongst the various associated establishments, some concentrating their energies on one particular factory and others dividing their time between two factories. At a considerable number of the mills arrangements have been made with the certifying surgeon on somewhat similar lines to those previously mentioned. The other combination has excellent welfare arrangements at many of their mills, and it is only the surmounting of the present trade depression which stands in the way of placing the rest under adequate welfare supervision.

The cotton spinning industry is particularly suitable for the successful application of welfare principles, and there is probably no other worker better calculated to respond to the activities of the lady supervisor than the cotton operative. When once the confidence of the women is gained the supervisor finds she can be really helpful to them in numberless ways.—W. F. Dearden, Manchester, *J. State Med.*, 35, 5; 249–258 (May), 1927.

The Tuberculosis Problem in an Industrial City—Birmingham, England, has a population of about 950,000 and is an industrial area with a variety of trades, a large number of which relate to the manufacture of metallic articles of all kinds. The housing conditions are variable, most of the central area of the city having been built about 100 years ago, and in an era when town planning was not in vogue. There result a large number of back-to-back houses more or less dilapidated. The seven central wards of the city had an average tuberculosis case rate per 1,000 for 1916–1920 of 4.88, which in the year 1921 was but 2.99. The middle ring of ten wards had the figures 3.08 and 2.04 respectively, while the outer ring of thirteen wards had the figures 2.21 and 1.46 respectively. While poverty and bad housing conditions are undoubtedly contributory factors, ignorance of the ordinary requirements of health, and of domiciliary and personal hygiene play no insignificant part.

The number of notified cases of pulmonary tuberculosis in Birmingham has declined from an average of 3,980 in the years 1912 to 1914, to 1,669 in 1922, and like many other manufacturing towns the death rate for this disease is higher amongst males than females. During the past three years the average death rate for males has been 1.25 per 1,000, whilst that for females has averaged 0.7 per 1,000, notwithstanding the fact that many females are engaged in industrial occupations.

. . . . . .

Amongst such trades we find scissor-makers with a mortality percentage rate for pulmonary tuberculosis of 34.5; file-makers, with a percentage mortality rate represented by 27.4; boot,

shoe, and slipper makers, with a percentage mortality rate of 34.2; and brass and bronze workers with a percentage mortality rate of 27.3.

The percentage mortality rate for pulmonary tuberculosis of males between the ages of 25 to 65 years, in England and Wales, for the period 1910–12, being at the rate of 17.8.

Brass work is essentially a Birmingham industry. During the year 1921 the registrar's death returns for the city showed that there were 502 deaths from pulmonary tuberculosis amongst males of 15 years and upwards, and of this number 9.2 per cent occurred amongst brass workers. These numbers were the largest for pulmonary tuberculosis associated with any occupation, during the period, notwithstanding the fact that brass work, although an important section of the city's industry, was not the one giving employment to the largest number of persons.

The author doubts whether there is any evidence to prove that hard work, under urban conditions, conduces to an excessive prevalence of pulmonary tuberculosis, provided that it is not associated with increased facilities for infection, an excessive indulgence in alcohol, continued exposure to dust containing silica particles, or an inadequate food supply.—G. B. Dixon, Birmingham, *J. State Med.*, 35, 5; 266–277 (May), 1927.

Difficulties in the Campaign Against Tuberculosis—Tuberculosis, an infectious disease which so recently as 1922 was responsible for nearly 43,000 deaths in England and Wales in one year, a number which is approximately 9 per cent of the total deaths from all causes, is an extremely urgent national problem.

The author takes up the difficulties under the headings of (a) notification, (b) economic and (c) housing. Naturally the question of employment enters into the economic question. What is happening to the families of those patients who are undergoing institutional treatment? Debts accumulate, starvation may threaten or materialize, the home may have to be given up, and the family dispersed. The picture painted in no way exaggerates the actual state of affairs in a tragically large number of instances. Again, there is the case of the worker who has been unable to endure a full and adequate course of sanatorium treatment and who arrives home to find the burden of debt and no work to which he can turn a hand.

The following directions are some of the important ones in which active steps are needed, namely: (a) The assistance of the dependents of those patients who are under institutional treatment; (b) The provision of suitable employment for those sufficiently restored to health to be fit for work; (c) Steps to increase the earning capacity of the whole family by change of employment of the individual members thereof, etc.; (d) Re-arrangement of the home or help to secure a more suitable home so that the patient's health may be maintained and the danger of home cross-infection minimized; (e) Financial assistance.

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It is interesting to note however, that the death rate from pulmonary tuberculosis in England and Wales has fallen from .99 per 1,000 of the population in 1914, to .85 in 1922, equivalent to 5,600 fewer deaths in 1922 than there would have been had the 1914 rate prevailed. This is real progress. Yet it is since 1914 that the active building of houses has ceased and our present overcrowded conditions have dated. Why has the death rate not risen? It was shortly before 1914 and the cessation of house building, that the present magnificent chain of sanatoria and tuberculosis dispensaries came into existence, and the treatment of tuberculosis at the public expense was undertaken on a large and comprehensive scale. It appears to me to be a justifiable assumption that the new treatment and isolation facilities more than counterbalance the harm done by the increase in overcrowding and that, so far as tuberculosis is concerned, we are actually better off than when we had many houses and no comprehensive treatment scheme.—B. T. J. Glover, Liverpool, *J. State Med.*, 35, 6; 333–340 (June), 1927.

New Jersey Health Service for Industry—The Industrial Health Service of the New Jersey Tuberculosis League has been functioning since May, 1925, when an industrial secretary was engaged to organize and supervise a health examination service for the plants in Newark. Simultaneously with this, the Paterson Tuberculosis and Health League began a similar service in Paterson.

A preliminary survey of existing medical facilities in the plants of Newark showed that only 41.7 per cent of them had any sort of medical service and the majority of those had only a physician on call. In other words, the greater number of factories had no medical supervision to speak of.

After the survey was made, the proposed program of the health service was outlined to both employers and employes in a series of talks given in the factories either during the noon hour or on factory time. The majority of employers were anxious to have the message placed before the workers in the best possible manner, and so company time was granted. Short talks on the value of the periodic health examinations were generally accompanied by charts and motion pictures. The films used were

"Working for Dear Life" and "Jinks." From twenty minutes to a half hour were allowed for the short demonstrations. At the close of the talk we ascertained how many employes wanted an examination and, if a nucleus of 25 or more responded, a clinic was established in the factory. In the talks, we took great care to emphasize the confidential nature of the examination as well as the fact that the examinations are voluntary. It was explained that there would be male physicians for the men and female physicians for the women. This is most important. Even though the examinations are confidential between the examining physician and the employe, and they were not instituted with the idea of apprising the employer of the condition of his employes, the employe himself often went to his employer with the results of the examination.

From a staff of 1 physician, when the service was started, it has been increased to 3 male physicians and 2 female physicians. An industrial nurse assists the physicians in the clinic, takes the histories of the examinees and carries out the follow-up program. The staff meets with an advisory committee composed of members of the executive board of the league and industrial physicians. The committee is headed by Dr. Samuel B. English, the other members of the committee being, Drs. R. H. Hunt, E. C. Jackson, J. R. Morrow, G. H. Van Embrugh, I. E. Gluckman, and J. B. Morrison, and Miss Beulah Bain, R.N.

Since the service was started, more than 2,100 examinations have been made. Approximately two-thirds have been examinations of male employes and one-third female, the men having responded to the offer more readily than the women. An analysis of the results of 1,746 examinations shows that 4.8 per cent had no physical defects as revealed by the examination, 70.8 per cent had minor defects, 17.7 per cent had advanced minor defects and 6.7 per cent had major defects or numerous advanced minor defects. These conditions were found in persons who considered themselves well and had "never had a sick day in their lives."

The author gives a detailed finding of what the examinations revealed, several typical case reports, and ends with the statement:

Medical supervision of employes in the factories of Newark is coming to the fore more and more.

The work of the service is intended to demonstrate to industry how important it is to guard the health of the worker, the value of periodic health examinations, and the manner in which a program of medical supervision can be carried out systematically and efficiently.—B. S. Coleman, Industrial Secretary, New Jersey Tuberculosis League. *Health Bull.* of the League, 9, 1: 3–8 (May), 1927.

FOOD AND DRUGS

WALTER S. FRISBIE

Effect of Pasteurization on Individual Germs Found in Milk—A study was made of pure cultures of 70 different types of bacteria isolated from unpasteurized milk, from dairy utensils rinsings, and from the interior of the cow's udder. Of 47 non-spore-forming organisms, only 2 survived pasteurization at 62.5° C. for 30 minutes. Experiments repeated with named species of non-spore-forming bacteria showed that pasteurization destroyed the bacteria with the exception of *Sarcina lutea*. The colon organisms used in this work did not survive pasteurization. There was no instance where a spore-forming organism was entirely eliminated by pasteurization. In two instances a larger count was obtained in pasteurized milk than in unpasteurized milk. This increase is explained as being due to breaking up of clumps of spores. The reason for the high counts of non-spore-forming bacteria in pasteurized milk which are being frequently encountered will be a problem for further investigation.—J. M. Brannon and M. J. Prucha, *J. Dairy Sci.*, 10: 263 (No. 3), 1927.

Relation of Connective Tissue-Content of Meat to Its Protein Value in Nutrition—Studies on rats were undertaken to determine the biological value of nitrogen in cuts of meat in low connective tissue content, in connective tissue itself, and in mixtures of the two. Pork tenderloin was used for the protein meat

and pork cracklings (back fat) for material high in connective tissue. The products were incorporated into a ration well balanced in all respects except for the absence of protein, to such an extent that the final ration contained approximately 8 per cent of crude nitrogen. Tables are given showing the results of completed experiments and analyses of the food and excreta and the biological value. It was found that the biological value of pork tenderloin was 79 and that of pork cracklings 25. Mixing the two materials in the proportion of 3 parts of tenderloin to 1 part of cracklings, a depression of the biological value was observed. A supplementary relation was indicated between the nitrogenous compounds of muscle and of connective tissue. Cuts of pork usually do not vary greatly in their content of connective tissue but it is easily believed that cuts of beef would vary widely in biological values in nitrogen owing to the varying amounts of connective tissue according to the cut.—H. H. Mitchell, Jessie R. Beadles, and J. H. Kruger, *J. Biol. Chem.*, 73:767 (June), 1927.

Bacteriological Observations in Cases of Meat Poisoning in Man—Cases of meat poisoning with positive bacterial findings have increased in Berlin in recent years. Especially, *B. paratyphosus B.* were found; also *B. enteritidis* and the bacillus of Voldagsen. Most positive findings were in fall and winter. Cases of paratyphus infection from goose meat were relatively frequent. Notes are given on cultural characteristics of paratyphus races.—(Ernest Pieper, *Centralbl. f. Bakteriol.* Abt. I Orig. 99(6): 385–388, 1926). Abstr. *Biol. Abstracts*, 1:327 (Apr.), 1927.

Antiscorbutic Vitamin Content of Milk of Stall-Fed Cows Throughout a Year—In view of the report by some investigators that pasture-fed animals produced milk richer in vitamin C than milk from stall-fed cows, studies were made to determine the antiscorbutic potency. Milk was obtained from one dairy where cows were fed an optimum ration throughout the year and were put out of doors for a few hours a day in suitable weather but never had access to pastures. Guinea pigs were used for experimental animals, weighing from 300 to 350 g., and fed a basal ration adequate in all respects except for vitamin C. The experimental diet was continued for 90 days and scurvy was determined by autopsy. It was found in this investigation that 50 c.c. of the milk used, fed 6 days a week, was sufficient to protect a 300 g. guinea pig from scurvy at any time during the year. It was concluded that stall fed cows on a well balanced uniform diet throughout the year will not show seasonal variations in the antiscorbutic factor. The cows received in the ration corn silage and soaked dried beef pulp which is regarded as having an effect in maintaining the antiscorbutic potency of milk. Assuming that an infant requires 5 times as much vitamin C as guinea pigs for protection against scurvy, it would seem reasonable to conclude that raw milk from cows fed as described in this investigation would be sufficient to protect infants from scurvy.—Florence L. MacLeod, *J. A. M. A.*, 88:1947 (June 18), 1927.

Vitamin D in Winter Milk—During the winter season when man is deprived of ultraviolet light, the vitamin D content of many of the chief articles of food especially cow's milk, is also lowered. This is a serious problem in the feeding of infants and children, especially in the north where winter conditions last longer than in the south. Workers in England have been successful in raising the vitamin D content of cow's milk by feeding the cows with cod liver oil. This method is also being practiced by Professor C. Pirquet of Vienna where the milk is always low in vitamin D because of the fact that the cows are kept in the stall the entire year. While the method has only been applied to two cows, the mercury-vapor quartz lamp which is movably suspended from the roof can be made to travel the whole length of the stall, which contains some 20 cows. This method is very encouraging because it is inexpensive compared with conditions and prices in Vienna.—*Lancet*, 18:936 (Apr. 30), 1927.

Susceptibility to Arsenicals of Animals on Vitamin-Deficient Diet—Rats reduced by a vitamin deficient diet to xerophthalmia and the appearance of rickets were studied for the toxicity of arsenious acid, neosalvarsan, atoxyl, and arsacetin. It was found that the fatal doses, among such animals, of the specific substance were lower than in the case of the healthy controls. Also the symptoms were much more severe. Of especial significance was the case with arsacetin. These experiments afford ground for the assumption that in avitaminosis there is a lessened resistance to infection in the animal organism.—Alexander Gros, *Biochem. Ztschr.*, 184:360 (May 12), 1927.

Cod Liver **Oil as Food. Observations on the Existence of Vitamin E**—Normal, vigorous rats, 50–60 g., were fed a ration of 18 per cent casein, commercial cod liver oil, yeast, dextrin, and McCollum and Davis salt mixture 185. The percentages of casein and salt were the same, vitamin E being supplied by the yeast, varying for the different rats. Cod liver oil was fed separately or with 5 per cent incorporated in the diet. The results obtained, as concerns reproduction, with cod liver oil varied according to the manner in which it was fed, whether separately or incorporated in bulk in the diet. When the latter was done, there appeared to be a decomposition of the oil resulting either in the formation of toxic products or the destruction of vitamins or both. When filtered butter fat was used in place of cod liver oil, it was found that the latter was much more satisfactory so far as the reproductive factor is concerned. The authors are now investigating the supposition that cod liver oil contains a specific vitamin required for iron metabolism, in view of the fact that previous investigators have found animals suffering from anemia after receiving a sufficiency of vitamins A, B, and C, and the condition was not remedied by ultra-violet light.—V. E. Nelson, R. L. Jones, Georgian Adams, and L. T. Anderegg, *Ind. & Eng. Chem.*, 19:840 (July), 1927.

Standards of Milk Pasteurization—"This paper has been written in defense of *Public Health Bulletin No. 147*, U. S. Public Health Service, to show that criticism of the material contained therein was unwarranted. The authors, it may be said, were associated in the work covered by *Bulletin No. 147* with Drs. V. A. Moore, Rosenau, Wadsworth, and Armstrong, so this paper may be considered authoritative.

"The bone of contention centers around the validity of the statement contained in the bulletin that pasteurization of milk is effective if carried out at 142° F. for half an hour, and at that temperature no injury is caused to the physical character of the milk, such as alteration in natural taste and prevention of separation of the cream—both of which may occur if the milk is heated to 145° F. for 30 minutes. As a matter of fact, it was shown in the bulletin quoted that the tubercle bacillus was killed off in 30 minutes' heating in the pasteurizing machine at 138° F., so that according to the authors 142° F. offers a complete margin of safety.

"In this paper they present data relative to thermal death points of the tubercle bacillus in milk under laboratory conditions in a MacFadyean-Hewlett water bath, and show that the bovine tubercle bacillus is killed off at 136° F. in 30 minutes.

"Further, the writers state that in actual practice with various types of commercial pasteurizers controlled by competent operators 'the temperature can consistently be maintained between 143° and 142° F. with the time accurately controlled for 30 minutes.'

"To uphold the 142° F. limit the writers quote Professor Bang's experiments on young rabbits which were fed milk containing tubercle bacilli, heated for 2 minutes at 140° F., and resisted infection. So if milk were held 30 minutes at this temperature one could assume that alimentary canal infection would not occur either, there being afforded a safety margin of exposure of 28 minutes in the processing.

"However, after all is said and done, it appears to the reviewer that, considering the great variation in types of pasteurizing machinery in use, some of which is faulty in mechanical details, as pointed out in *Public Health Bulletin No. 147*, it would be far safer to hold milk for 30 minutes at 145° F. Until a mechanically satisfactory standardized pasteurizing machine is in general use, a standard of 145° F. for 30 minutes should be adhered to throughout Canada."—(C. E. North and W. H. Park, *Am. J. Hyg.*, 7:147, 1927. From Abstracts of Current Public Health Literature, April, 1927, Department of Health, Canada, Ottawa, p. 2.) Abstr. *Pub. Health Rep.*, 42:1712 (June 24), 1927.

Action of Heat on Botulinus Toxin in Canned Foods—Canned foods containing toxin of *Clostridium botulinum* required 4–20 minutes heating at 100° C., 25–45 at 90° C., 25–60 at 80° C., 45–75 at 70° C., and longer than 4½ hours at 60° C., for detoxification when heated in tubes. The variations in times are explained on the basis of heat penetration and variations in toxin content. Probably the same factors determine the destruction of toxin in canned foods that explain the destruction of bacteria during the canning process. Heating of toxic foods to boiling under the usual conditions may not render them free from toxin.—(Fred W. Tanner and Helen B. Twohey, *Centralbl. f. Bakteriol.*, Abt. I Orig. 98(3/4): 136–141, 1926.) Abstr. *Biol. Abstracts*, 1:327 (Apr.), 1927.

CHILD HYGIENE

MERRILL E. CHAMPION, M.D.

School Clearing Houses—"Undoubtedly the future must see the inauguration of a new health program for children, permitting the selection and temporary segregation of the children in every school who are below par physically." This is the conclusion of Miss Craighan after experience in San Francisco with a school of 50, served by a physician, a psychologist, a specialist in the correction of posture, a cook, a nurse and two teachers. It is stated that these children are selected by physical and mental examination rather than by weight and that the turn-over is 47 a year.

Miss Craighan would have in every school building one room set apart for a special health class of mentally normal children but suffering from nervousness, undernourishment, cardiac disease, and children returning to school after acute communicable disease. The expectation would be that these health classes would serve "as clearing houses from which the salvaged children would return to regular work."

Ideas such as this are being tried out in various forms in different parts of the country. It should be possible soon to have a pretty good idea as to what the essentials are and what can safely be eliminated to the end that as many children as possible receive the maximum of benefit at the minimum of cost. Experiments such as Miss Craighan discusses help toward this end.—L. A. Craighan, R.N., *Survey*, June 15, 1927.

A Study of the Literature Relating to Posture—Under the above title Schwartz of the U. S. Public Health Service, gives a lengthy résumé of the available literature relating to posture, together with comments. This is not an article for one who wishes to gain a superficial idea of posture from a hasty reading of a simple article. It is one which cannot be read quickly but which will prove to be a mine of information for those who have occasion to make a serious study of posture or who wish to prepare an article on the subject. The intensive bibliography of 7 pages, including 154 references, seems quite complete.

It may be of interest to give a summary of the article in the author's own words.

SUMMARY

The consensus of opinion seems to be that—

1. The biped posture of man has been evolved from the quadruped posture.
2. The body has not yet fully adapted itself to the biped posture.
3. There are many physical disadvantages to the erect posture, but they are outweighed by the physical and mental advantages resulting therefrom.
4. Good posture can be attained by having good health, taking enough exercise to keep the muscles strong and the joints supple, and continually assuming correct postures in the daily tasks.
5. Fatigue is the most frequent cause of postural deformities in the industries.
6. Continuous sitting or standing in any posture is fatiguing.
7. Change of posture at the will of the worker is the remedy for industrial fatigue.
8. Industrial furniture should be so constructed as to fit the individual worker and to allow of comfortable working conditions both in sitting and standing postures.

THE AUTHOR'S COMMENTS

1. There is a lack of agreement in the various definitions of standards and tests for good posture.
2. Heredity, type of build, balance of muscle strength, and tone have not been given sufficient importance in establishing standards for posture.
3. It has not been established whether the faulty postures associated with certain diseases are the causes or the results of these diseases.
4. There is no universally satisfactory test for physical fitness.—Louis Schwartz, *Pub. Health Rep.*, May 6, 1927.

The Nervous Child—Speech Disturbances—Writing in *Hygeia*, Dr. Frank Howard Richardson refers to the untoward results which may follow attempts to correct left-handedness in children. One of such results may be stuttering. He points out that a certain amount of ambidexterity may be looked for in a number of instances in small children. In such cases it is safe to try to induce the child to use his right hand especially for writing and handling of the articles used at table.

The writer warns, however, carrying this any further if attempts to use the right hand result in fatigue, irritability or other nervous manifestations. — Frank H. Richardson, M.D., *Hygeia*, July, 1927.

DENTAL HEALTH EDUCATION

The Department of Dental Health Education of the *Journal of the American Dental Association* for May has several interesting articles which are well worth a brief comment.

Iowa—The first deals with prenatal and preschool dental service in Iowa under the Sheppard-Towner Act, and is written by Dr. George H. Wandell. In Iowa, the State Board of Education has charge of the administration of the Sheppard-Towner Act. Part of the money appropriated is used to carry on an educational program in dental hygiene. This educational program, so far as the dental side of it is concerned, is carried out through a dental clinic of which the personnel includes a dentist, a dental hygienist, and a nurse, the latter serving as the advance agent of the dental clinic. The dental clinic goes only to communities which invite it to come. Such a request as a rule comes from the local dentists, superintendent of schools, head of the Farm Bureau or such organizations as the Parent-Teacher Associations.

On receipt of such an invitation the nurse goes to the community, explains the work, arranges a meeting of all interested people, and impresses upon them the need for coöperation on the part of the community. The local committee assumes responsibility for the arrangements, one of which is the securing of the consent and coöperation of the local dentists for the visit of the clinic.

The clinic itself is, very evidently, from the description which Wandell gives, one of the preventive type rather than the more common reparative clinic. Twenty-five children are examined a day by the dental examiner. This examination is quite a thorough one and after it has been carried through, the abnormalities found are recorded and explained to the mother who is urged to obtain early attention for these irregularities from her own dentist. Careful instruction is given as to the proper home care of the child's mouth. If prophylactic attention is found to be necessary the child is then turned over to the dental hygienist who cleans the teeth.

It is encouraging to see a dental clinic which confines its attention to educational work rather than to actual treatment which should be the work of private agencies. It is not so encouraging to note that the writer of the article is not very hopeful of this work being carried on beyond the life of the Sheppard-Towner Act.

Norway—John Nilson, of Oslo, Norway, discusses in his brief article the work that is being done in his country in the way of dental clinics. A law was passed in December, 1917, providing that "The children must be assured the necessary dental treatment, and this must be accomplished in the space of 10 years." He points out, however, that this period is now extended by 10 years because of present economic difficulties. There is a provision made to enable county communities on occasion to receive part of their expenses in carrying out this law.

Apparently up to this time school dental care, as was the case with adult dental care, was provided for under a sick fund compensation, and was limited to extractions and a few minor operations. It is not quite clear from the article in what particulars the present administration of the school dental care is a new departure.

Nilson goes on in his discussion to outline the development of community dental care of the future as he sees it. He makes an interesting suggestion that its development must come about through community enterprise and not through that of private or semi-official associations. Some, it may be said in passing, would very seriously doubt the wisdom of this. He wisely points out that it will not do to attempt to solve the entire problem at once since this would entail an amount of work which would never be financed by public authorities. He would have clinics for adults supplied with permanently appointed and salaried dentists, and apparently would tie up the dental care of children with the workings of the municipal sick fund.

Such a method of handling the dental clinic is interesting to Americans especially in view of the contrast which it affords to our usual procedure in this country.

Japan—A very interesting article on Oral Hygiene Movement in Japan, by Dr. Mukai of Tokyo, would lead the reviewer to believe that the Japanese are somewhat in advance of ourselves in their handling of the dental hygiene program, although Mukai modestly compares Japan to America and Europe to the disadvantage of the former. The oral hygiene movement in Japan apparently is entirely educational in nature. Outstanding points in their program are:

1. An itinerant corps with a lecturer whose activities are apparently sponsored by the Dental Federation of Japan, which held its first oral hygiene exhibition and meeting in 1915. Apropos of the discussion of the dissemination of knowledge regarding oral hygiene, Mukai points out certain important factors in successful lecturing to children, factors which are only too often overlooked by the majority of lecturers, as seen in America.

2. Extension lectures in the form of a summer school attended by teachers of elementary, secondary and normal schools.

3. Oral hygiene exhibitions consisting of charts keyed to popular comprehension, photographs and models. One hundred and thirty-one such exhibitions have been carried on throughout Japan between 1915 and 1925.

4. Practical exercises including tooth brush drill and exercises of masticating of food, and mouth washing. It is interesting to note that in teaching mastication the lecturer uses as materials, apples, pickles and chewing gum.

5. Oral inspection and treatment of children. This was represented by two dental infirmaries for children which are run along the lines of such American institutions as Forsyth Dental Infirmary in Boston, and the Rochester dental dispensary. Japan has apparently found the itinerant dental clinic effective also. A dentist is sent out to visit schools and factories to inspect the mouths of students and workers and to give them treatment.

6. Prize contests and similar features. Mukai's description of these makes one think that the Japanese too have come to be a nation which leans heavily upon slogans. It is to be hoped that they avoid the danger of having the childlike faith in them which is so characteristic of us Americans. The prize oral hygiene slogan in 1924 being interpreted, was "Decayed teeth eat a man eventually." "Good teeth days" is also apparently popular.

7. Pamphlets and other printed matter. The lines followed in Japan apparently are those common in this country. Various oral hygiene publications are used. Fairy tales and songs for children are in demand, and a motion picture in ten reels is quite extensively used throughout the country.

8. Groups for the study of oral hygiene.

Comments—A study of these three papers on methods of handling the oral hygiene problem in an American state, in Norway, and in Japan indicates that all rely pretty largely upon the simple methods which have been devised to carry the story of any phase of public health to the average citizen of the community. In Iowa the demonstration method is relied upon with no treatment at public expense. In Norway the stress would seem to be rather more on treatment at public expense with less emphasis upon the preventive aspects, while in Japan a very successful effort seems to be on foot, judging by figures which we have no space to quote, to impress the public at large with the need of dental care by the judicious utilization of both preventive and reparative methods, with chief stress upon the preventive side, and carried out largely under private auspices.—*J. Am. Dental Assn.*, May, 1927.

National Bureau of Maternity and Child Welfare—Four traveling health centers, each in charge of a physician, have been established in Italy by the National Bureau of Maternity and Child Welfare authorized by the law of 1925. Obstetrical and pediatric clinics also have been organized in 54 communes. In coöperation with the bureau, the Italian Union for Child Welfare recently established its first child health center in Milan. The center gives physical examinations to children up to the age of 3, provides instruction in hygiene for the mothers, and grants special aid in cases of need. (*Difesa Sociale*, Rome, March, 1927, p. 32; *Revue Internationale de l'Enfant*, Geneva, April, 1927, p. 222.)—*Child Welfare News Summary*, Children's Bureau, May 28, 1927.

Midwifery Training for Nurses—The midwife, more or less of a problem in all states and a very real problem in certain parts of the country, has been the basis of many discussions. Attempts have been made to legislate her out of existence and attempts have been made to regulate and train her. Virginia is apparently to try to solve the problem by making use of graduate nurses with enough training in midwifery to enable them to attend normal cases and to recognize abnormal. The announcement is made that beginning in September, 1927, a course will be offered by the nursing school of the Medical College of Virginia coöperating with the Federal Board for Vocational Education, which will have for its aim giving the type of obstetrical training above referred to, to nurses who are graduates of accredited hospitals—*Pub. Health Nurse*, June, 1927.

Infant Feeding—Those of us who are old enough in the practice of medicine to indulge in retrospection can recall having lived through several periods of change with respect to the feeding of infants. Each one seemed for the time being to be the final solution. Each one in the end saw itself superseded by another and, we hoped, simpler method.

Serious students of the problem of infant care are not likely to get puffed up with pride during such periods of retrospection. However, it

is more or less a characteristic of human nature to dwell on the successes rather than on the failures of life and so, at times, claims may be made which can hardly be substantiated by facts. For the benefit of those who are inclined to take too rosy a view of the problem of infant feeding, the following brief poem is inserted. It was found in an article by Dr. Leonard Findlay, in *Maternity and Child Welfare*, in the course of which he reflects on infant feeding. The poem was read some years ago at a meeting of the American Pediatric Society.

INFANT FEEDING

Soranus, he of ancient Rome,
He had a simple trick
To see if milk was fit for sale,
He merely dropped it on his nail
To see if it would stick;
Yet spite of this the babies grew
As any schoolboy'll tell to you.

Good Metlinger in ages dark
Just called milk good or bad,
No acid milk could vex his soul,
He gave it good, he gave it whole,
A method very sad;
Yet babies grew to man's estate
A fact quite curious to relate.

Time sped and science came along
To help the human race,
Percentages were brought to fame
By dear old Rotch, of honoured name,
We miss his kindly face;
Percentages were fed to all
Yet babies grow both broad and tall.

The calorie now helped us know
The food that is required,
Before the baby now could feed
We figured out his daily need
A factor much desired;
Again we see with great surprise
The babies grow in weight and size.

The vitamin helps clarify
Why infants fail to gain,
We feed the baby leafy food
Which for the guinea-pig is good
A reason very plain;
And still we watch the human race
Go madly at its usual pace.

We have the baby weighed to-day,
The nursing time is set,
At last we find we are so wise
We can begin to standardise,
No baby now need fret;
In spite of this the baby grows
But why it does God only knows.

Away with all such childish stuff,
Bring chemists to the fore,
The ion now is all the rage,
We listen to the modern sage
With all his latest lore;
And if the baby fret or cry
We'll see just how the ions lie.

A hundred years will soon go by,
Our places will be filled
By others who will theorise
And talk as long and look as wise
Until they too are stilled;
And I predict no one will know
What makes the baby gain and grow.

PUBLIC HEALTH NURSING

MIRIAM AMES, R.N.

Institute for Board Members of Public Health Nursing Organizations—The June number of *The Public Health Nurse* contains the Proceedings of the Institute for Board Members of Public Health Nursing Organizations. Predictions indicate that the June issue will be read more carefully than many another for the simple reason that the natural curiosity and interest of all nurses was aroused to the burning point when it was announced that only a selected number of experts in the nursing profession were to be invited to this conference. Beginning with the first article, "Origin and Development of the Institute," to the conclusion, "Registration by States," every paper holds something of special value and profit to the eager public health nurse who wishes she might have been included when the invitations were distributed. For instance, there is a definition of "The Perfect Board":

This, then, is the ideal board:

Well-selected as to representation and ability

Well-educated in the lore of public health nursing

Well-divided into working committees

Well-guided by president and executive

This is surely "the tape measure of utility" for boards of every Visiting Nurse Association. Importance of organization and committee responsibility are stressed.

"The Relation Between the Board and Its Professional Staff" is described by Miss Tucker as "a partnership of equals," and it is shown how this can be brought about quite naturally when there is sympathetic understanding, knowledge, loyalty, frankness and common interest between the two groups. The demands made upon board members are so clearly pointed out by Miss Gardner that if these are to be met, there is real absorbing work for each member. Miss Gardner makes a plea for a new evaluation and a new analysis of the function of board members. "The volunteer guardians of public health" is the name given to the board members by Professor C.-E. A. Winslow. Board members must have a consciousness of the needs of the community first, then they must make sure that they are accomplishing their self-appointed tasks of supplying a high character of service. Flexibility of mind and breadth of vision are two necessary adjuncts to great achievement.

Much good advice and common sense are contained in Dr. Haven Emerson's paper on "Public Health Nursing in Its Relation to the Medical Profession." Dr. Emerson presents the viewpoint of the physician in a very fair practical treatise outlining the causes of misunderstanding between the members of the nursing and medical professions and remedies.

Among other items of interest are papers on "Financial Problems," "Mobilizing Public Support for Public Health Nursing," "Educational Publicity," "Public Health Nursing in Its Relationship to Social Agencies," "Education of Board Members" and "New Trends in Nursing Education."

Surely the New Haven Institute was a unique method of showing to the board members the way in which they can accept their increasing responsibilities, enlarge the scope of their energies, and broaden their contacts with allied agencies in their communities.

The immediate outcome is that several similar institutes are to be planned for various sections of the United States. Who can venture to predict what the future will hold for the advance of public health nursing?

The Care of a Cardiac Patient During Pregnancy—How public health nurses may aid in the prevention of heart failure in cardiac patients during pregnancy is suggested by Dr. Burton E. Hamilton, in a paper published in the March number of the *American Journal of Nursing*. Dr. Hamilton has studied heart disease complicating pregnancy, at the Cardiac Clinic of the Boston Lying-In Hospital, for seven years.

He tells us that although some 7½ per cent of the patients reporting to the pregnancy clinics are referred thence to the heart clinic, only a small proportion have signs of definite heart disease. He believes that about 1 per cent of all pregnant women are serious cardiac risks. This 1 per cent is important, however, for it furnishes a large fraction of all maternal deaths.

The majority have rheumatic heart disease; failure develops usually from one of two causes—from some more or less mild infection, such as a cold or grippe, or from over exertion.

It is evident, therefore, that the cardiac patient should take especial precautions to avoid infection, and that if it develops in spite of her, she should go straightway to bed, remaining there until she has recovered.

A definite set of rules is helpful in guiding her to avoid over exertion. These include:

1. Ten hours of bed each night
2. Rest, lying down, for half an hour after each meal
3. No hurrying, climbing, lifting
4. No shopping
5. No moving to a new home
6. Another woman in the house, to enable her to follow the rules
7. Avoidance of physical exercise
8. Hospital delivery

Every nurse knows how difficult it is for a busy housewife, who feels well and does not realize the urgency of care, to follow such rules. Dr. Hamilton says that his experience has convinced him that the control of such patients depends largely on the social service and the out-patient nurses.

Recognition of a failing heart is usually possible only by means of experienced medical examination. This, of course, is one of the many reasons for early supervision by the physician. However, some signs may be noted by questioning; for instance, a smothering sensation which requires a patient to sit up at night, after lying down for a while, and coughing on exertion. A few such patients expectorate small amounts of blood occasionally.

If the signs of a failing heart actually occur, the patient must go to bed, preferably in a hospital. She requires very intensive nursing

care, and should remain in bed for three weeks after her symptoms have cleared.

If 7½ per cent of the Boston Lying-in patients are referred to Dr. Hamilton's clinic, and only 1 per cent are serious cardiac cases, what of the other 6½ per cent?

One group, Dr. Hamilton says, have doubtful physical signs. They are not diagnosable and they make good pregnancy risks. Of 182 consecutive cases there were 2 maternal deaths, these being from complications not associated with the heart.

The remainder of the patients constitute a large group, and are women having no heart disease. Their symptoms suggest disease, but they are found to be "fatigued or frightened, nervous women with cardiac neurosis. Many of them are badly handicapped by their symptoms."

"We have handled this group by reassuring them and giving them instructions as to sensible, hygienic living."

This suggests that here, too, the public health nurse has a part to play. She can reinforce the doctor's assurances, and do much to improve the patient's condition by improving her mental health.

State Aid to Towns for Public Health Nursing—The State of Connecticut is now prepared to offer a helping hand to the municipalities which, less fortunate than their well-to-do sister towns, are unable within themselves to finance a public health service.

A bill passed recently by the General Assembly provides state aid to towns for public health nursing.

Any town may make application to the State Department of Health for aid, and those towns entitled to it will receive their proportionate share of reimbursements for the cost of the service of one nurse.

Towns will be classified according to their average yearly receipts; thus, those having average receipts of not more than $10,000 will be rated as first class, while those whose annual receipts are $45,000, but not exceeding $50,000, will be rated as ninth class. First class towns will receive 75 per cent of state reimbursements and ninth class towns only 10 per cent.

Each town applying for aid may submit a public health nursing program for approval by the State Department of Health and until this approval is withdrawn the town will be entitled to aid. Qualifications of the public health nurses will be approved by the state where appointments are made.

The task of administering the public health nursing service will be given to the local health officer or a person or group appointed by him. An appropriation of $30,000 has been made for the purpose of carrying out this Act, and the funds become available in July of this year.

A recent study of the rural needs of Connecticut brought to light the fact that whereas small communities were eager for nursing service, they were hampered materially because of insufficient funds.

In 1918, when the Connecticut Department of Health began the development of public health nursing, 37 towns had a community public health nursing service. To-day, 90 towns can avail themselves of this service, and moreover these towns may finance and administer their own service.

Seventy-nine towns are without public health nursing service except for what school nursing is done, and the child health conferences held by the State Department of Health in 17 of the 79 towns.

The facts revealed by the Connecticut survey doubtless would be similar to those in other states, and better than the conditions in many of the large western states, should corresponding studies be made.

The decision reached as the survey was brought to a conclusion is significant: "The general feeling seems to be that the most desirable service would be given by a community nurse who would do generalized nursing in the town."

The State Department of Health defines the term community public health nurse as "a registered nurse who has had at least 4 months' postgraduate work in public health nurse training, or 6 or 8 months' supervised experience on a well organized public health nursing staff."

EDUCATION AND PUBLICITY

EVART G. ROUTZAHN *

HONORABLE MENTION

For having index in a biennial report:

Connecticut State Tuberculosis Commission

For table of contents in annual report (although it is headed "Index"):

Alabama State Board of Health

For having table of contents:

Alameda County Public Health News

Sanitary Bulletin, Buffalo

For table of contents in annual report:

Hawaii Board of Health

Dominion of Canada Department of Health

The Health "Spider" in Kentucky—"When this department (the Johnson County Full-time Health Department) wishes to sound out a new health project and round it out in such a way that the people themselves will respond more quickly to it, invitations are sent out to afternoon tea. We plan to have the tea either at our offices or at a church parlor, and make very little attempt to decorate either place other than with health posters. Our tea menu is of the simplest, as an elaborate one would take more time and hinder us from indulging so often. The ladies gather about 3 o'clock and we try to have a very informal atmosphere, usually asking some one to see that every one knows every one else. We sometimes talk while the ladies are having tea. At other times tea immediately follows our discussions, and we conduct open forum and ask opinions.

"This is an attempt on our part to inveigle the more responsible women of the county to assume their proper responsibilities in public health matters. Also we explain to them that if we do not have the citizens' viewpoint to guide us, we may become like the band which outdistances the procession for which it is supposed to furnish marching time. This social ruse is necessary in many communities because while expressing sympathy for the work, the work is little understood in reality and it is impossible to arouse active interest. . . . They seem to like the afternoon teas, as they furnish an added event to a small social calendar. By our discussions, we formulate certain kinds of public opinon as to recreation, general morals, health habits, social aspects, etc., which bear indirectly on what they understand our work to be."—*Public Health Workers Bulletin*, Ky. State Board of Health. April, 1927.

An Editor Looks at Annual Reports—"We have often wondered why some reports are printed. They contain nothing of interest or value either to the community they represent or to similar workers elsewhere. Just a drab, monotonous recital of statistical data culled from office records. No interpretation of such data is offered or is possible."

"The annual report of the health department should be a masterpiece of salesmanship. By it and through it the health official should be able to show his people the value of his department in the betterment of community welfare. Significant accomplishments should be dramatized in a way that will command attention without being boastful. There should be no question as to the worth of the department of health to the community it serves and its claims for recognition and support should be based on accomplishments rather than on economies. . . ."

"Printed reports are to be favored for permanency, but many are being mimeographed and bound. This reduces the cost and really lends itself to illustration by drawing and cartoon. As these reports multiply, may their usefulness increase."—*Nation's Health*. June, 1927.

Affirmative or Negative: Which Wins?—College, and public school debating and literary societies, settlement clubs, etc., are frequently eager for fresh and significant topics for debates. What has public health to offer? Topics could be offered to state libraries and extension services, many of which supply topics and reference material to many debating organizations. Also they could be offered direct to local groups

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York City.

of many types. A local or state debating contest might be practicable and worth while. Now is the time to start something for next winter.

Marking Photographs for the Engraver—"Instructions to the engraver, as to style, size and screen of a halftone desired may be marked on a photograph in three different ways:

1. On the blank margin of the face of the print.

2. On back of the print.

3. On a piece of paper pasted on back of the print and extending from the lower edge of the print. By this method the marking can be done on the paper in such position that it will appear at the 'foot' of the print after the paper has been pasted to the back of it. . . .

"Instructions should never be written on a piece of paper and the paper attached to the photograph with a paper clip. The metal fastener would be bound to show its mark on the surface of the print, and this mark is apt to show in the plate.

"It is not a good plan to mark instructions on back of a print, but when necessary to do so, the marking should be done lightly with a soft lead pencil, so that the impression from the pencil will not show on the surface of the print."—*Am. Printer.* June, 1927.

Anything About Diphtheria, Please—Good phrases; good sentences; good paragraphs; good leaflets; good arguments; good newspaper stories; good accounts of meetings, attendance at clinics, etc.; good slides; anything good that you or any one in your city or state has used against diphtheria or for immunization is most earnestly requested in preparation for a session of the Public Health Education Section at Cincinnati in October. Kindly send samples or information to Evart G. Routzahn, 130 East 22d St., New York City.

Distribution Through "Useful People"—If you have built up a directory of organizations and audiences and have made a census of useful people (in your city or state) you can make good use of many of the references in this department of the JOURNAL. A half dozen even, or a score or more copies of some of the pamphlet issues could be mailed to selected addresses with your card attached.

From month to month several groups of references to articles, pamphlets, etc., could be mailed to addresses especially selected.

The secretary of the chamber of commerce may welcome certain items. The parent-teacher associations could use some of the material. The public and school libraries might like to receive suggestions from you. Very few of those who would welcome information on special topics will know of the references you have in this department.

There If Anywhere—If there is an answer anywhere to the question you wish answered on health education it will be found at Cincinnati in October. If there is any kind of material or help you need in health education work you may count on finding it at Cincinnati or on learning where to get it. If there are experiences you wish to talk over with those who have had somewhat kindred experiences you may expect to locate those people at Cincinnati. If there is anything you wish to secure at Cincinnati or any people you would like to talk matters over with while there it will be good to write in advance to the secretary of the Public Health Education Section, John Hall, 370 Seventh Ave., New York, N. Y.

Graphic Arts Exposition, September 5–17, 1927—Not oftener than once in five years, by agreement among those interested, a great exposition of printing and allied trades is held in this country. Those who wish to study printing at its best, and the materials and processes which make up printed matter, will seek to visit the Exposition to be held in Grand Central Palace, New York, N. Y.

Public Health Workers Do Not Study Publicity and Education Methods—Probably every issue of every public health professional journal contains references to education or publicity. Many of the papers in public health conventions refer to the need of education. There is a Public Health Section of the A.P.H.A. and a department of Education and Publicity in the AMERICAN JOURNAL OF PUBLIC HEALTH. Every state and national health organization receives numerous letters asking for advice or materials. And the A.P.H.A. Committee on Training has a representative from the Public Health Education Section.

But practically no school of public health recognizes the subject. We have twice gone through the 1927–1928 catalogue of the Johns Hopkins School of Hygiene and Public Health without finding even the words "education" and "publicity." Evidently the varied skills, gained at the cost of much study and practice outside

the public health field, come naturally to the proud possessor of the degree of Doctor of Public Health or the degree of Doctor of Science in Hygiene.

Providing Source Material for Publicity Workers—A clip sheet for newspapers and magazines, "Why We Need a Public Library," (American Library Assn., 86 East Randolph St., Chicago. 23 pages. 25 cents) illustrates a type of "help" needed on many subjects in public health. The hurried local or state worker cannot be expected to make individual collections of material on more than a few of the many subjects and problems upon which he must write or talk in the course of his work. Some of this library material can be copied without credit; any of it can be re-written for local use.

Extend the Field—Get on the Program—Numerous state and national gatherings of health and other social workers will be held in the fall and winter. In few of them will there be any discussion of health education and publicity unless readers of the JOURNAL take the initiative. Possibilities: ask the program committee to make a place for the subject; offer to plan for a round table session; arrange for a breakfast, luncheon or dinner gathering. If you accomplish nothing more this year it will be well worth while to get together those who are interested, get acquainted and see if you can plan for somethnig on the next year's program. A plan for a round table or other gathering will be supplied upon request to the editor.

CONTESTS

An artist who has served as judge in 15 poster competitions within a year calls attention to 24 points to be considered in making up instructions for the competitors. "Poster Competitions," by R. F. Babcock. *The Poster*, 307 South Green St., Chicago, Ill. June, 1927. 30 cents.

Prizes for wood block posters have been awarded by the Chicago Tuberculosis Institute to students in the department of printing arts, Art Institute of Chicago.

Winners in the 1926 Christmas Seal Sale publicity contest are in four classes: Massachusetts, West Virginia, Chicago, Cedar Rapids. Honorable mention: Ohio, Iowa, Boston, Fort Wayne. Details in *Bulletin*, National Tuberculosis Assn. June, 1927.

Your local schools may be interested in the early fall in a poster competition on accident prevention announced by National Safety Council, 108 East Ohio St., Chicago, Ill. Closing date, Nov. 1, 1927.

Playing for Health by Means of a Health Play Contest in High Schools, by Elizabeth Cole. *Hygeia*. Nov., 1926. Describes contest conducted by the tuberculosis associations; "What Price Flies?" second prize play given in full.

EDUCATIONAL MATERIAL

Caring for Teeth, and Eating for Teeth. Massachusetts Dept. of Public Health. Two one-page leaflets. Illustrated.

Books and Pamphlets on Child Care. U. S. Children's Bureau. Revised list of publications. *Free.*

Choosing the Camp, by Helen L. Kaufman. *Children*, 353 Fourth Ave., New York, N. Y. 14 pages. 10 cents. Why camp life for children: what parents should know about a camp, including "What Provision Is Made to Ensure Health?"

Food, Teeth and Health, and Healthy Teeth. Philadelphia Child Health Society, 311 South Juniper St., Philadelphia, Pa. Two folders addressed to mothers.

Daily Time Cards for Babies and Children. U. S. Children's Bureau. Wall cards for 6-age periods. *Free.*

Nutrition in Relation to Reproduction and Vitality of Offspring. U. S. Children's Bureau. Order of Supt. of Documents. 5 cents.

Practical Application of Mental Hygiene to Welfare of the Child. 5 cents. Same as above.

What Is Malnutrition? 5 cents. Same as above.

A Message to You from the Commissioner of Health. Four-page folder signed by Commissioner Koehler of Milwaukee, Wis. Persuasive appeal for accepting quarantine and for reporting contagious disease. Question: Is there a better, safer word than "reporting"?

Statement—The National Health Council—1927. 54 pages. Includes description of leading national health agencies. For libraries, clubs, etc. *Free.* Address: 370 Seventh Ave., New York, N. Y.

When Great-Grandmother Was a Little Girl. Another of the intimate printed communications so successfully prepared by Dr. W. W. Bauer, Health Dept., Racine, Wis. About smallpox vaccination.

The Baby's First Days. Met. Life Ins. Co., 1 Madison Ave., New York, N. Y. Novelty folder with emphasis on "This Baby Had a Careful Mother." One of the very best yet for mothers.

Dyskinesia: the Pet Ailment of Erring Millions. Met. Life Ins. Co., 1926. 24 pages. About constipation. See the two-color pen-line sketches.

Foot Health. Met. Life Ins. Co. "Do You Walk or Do You Hobble?" 16 pages. 16 illus.

The Great White Way to Health. Met. Life Ins. Co. Inside: "Clear the Path to Health and Safety." Clean-up campaign.

How to Live Long, by Irving Fisher. Met. Life Ins. Co. Revised edition—but not indicated. 32 pages.

Overweight: Its Cause and Treatment. Met. Life Ins. Co. Revised edition—but not indicated. 32 pages.

Rheumatic Diseases. Met. Life Ins. Co. 1927. 10 pages.

So Is the Tree Inclined. Met. Life Ins. Co. 1926. 11 pages. Child's mental health.

Telltale Arteries. Met. Life Ins. Co. 10 pages. 1927. "The Story of the Blood Pressure."

The Value of Human Life at All Ages. Met. Life Ins. Co. 10 pages. Readable, condensed popularization of material first published in *Statistical Bulletin*. "Expectation of Life in Years" is not explained. Unfortunately it is not dated.

When Levees Break. Met. Life Ins. Co. Outside: a flood scene. Inside: "Stop the Floods of Disease That May Follow the Floods of Water" (typhoid, malaria, "catching" diseases).

POPULAR HEALTH ARTICLES

A Fraud Upon the Public, by H. S. Cumming. *Printer's Ink*, New York, N. Y. April 7, 1927. 10 cents. "There is no angle from which advertising of correspondence schools of nursing can be justified." Especially effective statement for laymen.

"If I can come back anybody can," by Arthur A. McGovern. *Collier's*. March 26, 1927. What a simple program of exercise and diet did for Babe Ruth.

Longer Life for a Few Precautions, by Trudy Jopp. *New York World Magazine*. Oct. 31, 1926. "Science now knows the chinks in the human organism through which disease and death may enter, and can show you how to keep them out."

What Price Beauty? *New York World Magazine*. May 1, 1927. "The business in this country totals $200,000,000 a year and is largely legitimate, yet dangerous quacks make drastic regulation imperative."

LISTS

Educational Directory, Bureau of Education. 1926 (for 1927). Supt. of Documents, Washington, D. C. 20 cents. Numerous lists including educational, civic and learned associations. Among special schools listed are those of osteopathy and veterinary medicine—but not public health!

MOTION PICTURES

The Motion Picture, Motion Picture Producers and Distributors of America, 469 Fifth Ave., New York, N. Y. *Free* "to all groups and individuals interested in the development of motion pictures to their greatest good." The current issue tells how the motion picture industry coöperates in the celebration of National Hospital Day.

A dental hygiene one-reel picture for elementary grade children is about to be released by the N. Y. Tuberculosis and Health Assn.

"A motion picture, 'Mad Dog,' has been prepared for the N. Y. State Dept. of Health."

"Sun Babies," a one-reel film, has been produced by the Children's Bureau. By means of pictures of actual cases handled in the course of the three-year study of rickets made by the bureau in coöperation with the Department of Pediatrics of Yale University School of Medicine, the film shows the disastrous results of lack of sunlight and the marked improvement noted after several months of treatment with sunbaths. Other scenes show how the average mother, whether in a city apartment, a suburban home, or on a farm, can give her baby the sunbaths which are so important a factor in the prevention and cure of rickets. The film will be loaned by the Children's Bureau with the understanding that the borrower will defray express charges and guarantee the safekeeping of the film. To purchase the film apply to the bureau for information and prices.

PROBLEMS AND METHODS

A "roll of honor" of counties and cities where no deaths from typhoid fever were registered in 1926 appears in *Weekly Bulletin*, California State Board of Health.

An effective use of scoring by the *Appraisal Form* is found in *A Survey of Public Health*

Work in Fargo, N. D., by W. F. Walker. Bulletin No. 5, Child Health Demonstration Committee, 370 Seventh Ave., New York, N. Y. The scores for four years in block diagrams, with brief text statement, appear at the foot of the pages on vital statistics, prenatal service, etc. The plan of the report makes it easy for the "average citizen" to get the significance of the subjects, to compare progress from 1922 to 1926, and to see the "Next Steps." It is one of the "model" reports. The striking diagram of total scores and expenditures is weakened by the attempt to indicate the 1920–1922 record as 100 per cent.

Ask us another! City Housing Corporation, 587 Fifth Ave., New York, N. Y. *Free.* 10 pages. A brand new use of the question idea to be applied to housing, health, etc. You may wish to make your questions a bit less cryptic.

Nearly one in four of the school children of Wabash County, Ill., were induced in "a little publicity campaign" to "go to their family physician for the three doses of toxin-antitoxin," as told by Effie S. Andrus, Red Cross public health nurse.—*Illinois Health News.* May, 1927.

None of the 411 deaths from diphtheria in Illinois in 1926 occurred in 45 of 102 counties, nor in 17 cities of 10,000 or more people. The "honor list" of cities and counties made effective publicity for some statistical material.—*Illinois Health News.* May, 1927.

Not much has been done yet in learning how to awaken interest in health examinations. What Lincoln, Neb., is doing among junior high school pupils is told in "Preparatory Schoolroom Lessons for Health Examinations," by Harvey L. Long (A.P.H.A. member).—*Nation's Health.* Apr., 1927.

Superstition in Virginia, by Annie L. Moore. *Nation's Health.* Oct., 1926. Collect your "native" or "home-grown" health superstitions and let your editor use them.

Wanted: "Safety Manager" in Our Homes, by Ethel M. Hanson. *Red Cross Courier.* May 2, 1927. Easy causes of 20,000 fatal accidents in homes.

When Kiwanis or Rotary starts a fresh air camp the most effective aid in helping them to do a good job is *Children's Health Camp Manual*, a beautifully illustrated and printed 46-page pamphlet. State Charities Aid Assn., 105 East 22d St., New York, N. Y. 25 cents. It is a happy illustration of making a manual of instruction attractive and readable. Two pages on publicity methods and two of samples of press material.

TIMELY TOPICS

Typhoid inoculation, making drinking water safe, and related topics are receiving news mention and editorial discussion because of flood conditions. Who have made good tie-ups outside the flood areas?

Lindbergh is already the text for many advertisers and givers of good advice. He offers effective material for health workers, but don't delay until all the others have over-worked his name and his record. "What price . . ." is long due for the discard. Popular phrases, events and people can be used to splendid advantage by health workers, but "do it now"—not "eventually."

The Automobile and the Butchers Bill. Radio Health Hint No. 108. New York State Dept. of Health.

They Are Just as Dead. Press release, Dept. of Health, Detroit. May 21, 1927. Compares death of 44 children in Bath, Mich., explosion with 47 deaths of children from diphtheria.

Safety First for July Fourth. *Hygeia.* July, 1926.

What Will the Fourth of July Mean to You? Radio talk by N. Y. State Health Dept. June 26, 1926.

Avoiding Rabies. *Weekly Health Bulletin.* Connecticut State Dept. of Health. June 1, 1926.

Save a Life. *Weekly Health Bulletin.* Connecticut State Dept. of Health. July 6, 1926. Artificial respiration.

Roadside Water Supplies. *Conn. Health Bulletin.* State Dept. of Health. Sept., 1926.

The Strenuous Week-end. Press release Oregon State Dept. of Health. July 27, 1926.

Thoughts for the Week-end. Radio talk. New York State Dept. of Health. July 3, 1926.

Diet and Nutrition in Children's Summer Camps. Radio talk. New York State Dept. of Health. June 19, 1926.

Eating Wild Things. *Travellers Standard,* Hartford. July, 1926.

Getting Ready for September. News release, Massachusetts State Dept. of Public Health. June 6, 1927.

TITLES

"Most headlining (of advertisements in newspapers and magazines) is meaningless, platitudinous, banal and of unyielding stupidity," says *The Mailbag*, Cleveland, O., under "Headlines." June, 1927. 10 cents.

"A headline is a lure for readers' attention. It's a device for capturing the glance of the

passer-by and converting him into the passive buyer (or reader of our health advice)."—*The Mailbag.*

"What the world wants, and has wanted since the beginning, is news. . . . If you can tell a man something new, you can get his attention. Give it a personal twist, or show its relation to business, and you have his interest."—*The Mailbag.*

"The Messenger of Death." *Health*, New Haven Dept. of Health. "The common fly."

"Neither Sick Nor Insane." *Weekly Health Bulletin*, Connecticut. Case story of a woman "physically sound, but emotionally starved."

"Those Troublesome Teens." Radio talk by U. S. Public Health Service.

"Vacation Vagaries." *Hygeia.* June, 1927.

REGRETTABLE—BUT TRUE

That the annual report of the . . . Board of Health came rolled so tight that after several minutes we gave up the attempt to make it stay unrolled long enough to be read.

That the . . . Health Department continues to address its monthly bulletin to a large city like New York without street address—after it has been requested to correct.

That routine statistical material occupies the first eight pages of the . . . monthly bulletin—with three pages of readable text buried in the back.

NEW PERIODICALS

Social Service Review, University of Chicago Press, 5750 Ellis Ave., Chicago, Ill. Quarterly. $1.00; $4.00.

LAW AND LEGISLATION

JAMES A. TOBEY, LL.B., DR.P.H.

The Parker Bill Gets More Support—Resolutions in support of the principles of the Parker bill, introduced in the last Congress for the correlation of federal health activities, have recently come unsolicited from several powerful agencies. Perhaps the most important of these is the resolution adopted by the U. S. Chamber of Commerce at its annual meeting in Washington, D. C., on May 5, 1927. Emanating from the most influential business organization in the country, this boost for the Parker plan ought to have great weight with Congress. When business supports a public health measure of general scope, it is a certain indication that its principles are reasonably sound. This particular measure was sponsored by health workers and political scientists and no commercial agency was ever concerned in any way with its formulation. It is gratifying to observe, however, that big business looks upon the promotion of efficiency in our national health service as good business.

In acknowledging a copy of this resolution, Secretary of the Treasury Mellon wrote that the action of the Chamber was highly appreciated, and said, further, that, "It is believed that this measure, if enacted into law, will permit of the accomplishment of much needed coördination in the field of federal public health activities and it is hoped that this measure will be reintroduced in the next session in time to allow favorable action upon it by the Congress."

Other resolutions in favor of the principles of the Parker bill were adopted by the American Medical Association and by the Conference of State and Provincial Health Authorities of North America at their respective annual meetings in Washington in May, 1927. Both of these influential agencies had previously gone on record in favor of this measure and it is significant to note that their faith in it has not faltered.

Denmark Shows the Way—Prior to December, 1926, the national public health activities of Denmark were scattered among five of the departments of the government, including the Ministries of Home Affairs, Justice, Social Affairs, Education, and Agriculture, respectively. The work of the various health bureaus is set forth in a comprehensive article by Dr. Thomas Parran in *Public Health Reports* for May 27, 1927. In a note, he states, "December, 1926, a liberal government came into office. A Ministry of Health replaced the Ministry of Social Affairs. Practically all public health activity is now under this new ministry." Denmark has

always been noted for its low mortality rates and the vigorous health of its people. Now it also deserves credit for the centralization and correlation of its government health activities, a procedure which could be followed to advantage by the United States.

Chile Also Reorganizes—As a result of advice rendered to the Chilean government by Dr. John D. Long of the U. S. Public Health Service, who served as Technical Adviser to the Ministry of Health of Chile from July, 1925, to March, 1927, the public health laws of that nation have been completely rewritten. The story of the reorganization in this country is told by Dr. Long in *Public Health Reports* for June 17, 1927. Again, the United States might take notice.

Milk Ordinance and Law Upheld—In Pennsylvania the Supreme Court of the State sustained a comprehensive milk ordinance of the City of Lancaster, in an opinion handed down of May 9, 1927. Hoar v. City of Lancaster, — Pa. —. The ordinance, passed in 1925, provided for the sale of milk under certain conditions, for licensing, created a milk inspection bureau and constituted the board of health as such bureau, and made various other provisions. The Supreme Court refused to allow an appeal dismissing an injunction against the enforcement of the ordinance, and quoted as authority a previous decision, which held that, "The law and the ordinance are based upon the power of municipalities to protect the health of the people by providing for the sale of pure milk and such laws have been uniformly sustained by the courts."

We are indebted to Dr. Appel, State Health Officer, for an advance copy of this decision.

In New York, a quarantine order issued by the State Commissioner of Farms and Markets against a herd and premises where cattle had not been tuberculin tested in a town where 90 per cent of the cattle had been tested, was upheld by the Supreme Court of the State in the case of People v. Teuscher, 221 N. Y. S. 20. The action taken was in accordance with a state law, which was upheld as proper and reasonable.

Reorganization of Our Bureau of Chemistry—The reorganization of one bureau having an interest in public health has recently been effected by our government. By means of a rider attached to an appropriation act, the last Congress divided the Bureau of Chemistry of the Department of Agriculture into two sections, combining several other activities with each. After July 1, 1927, all regulatory work, including enforcement of the federal food and drugs act, the import milk act, the caustic poison act, the tea inspection act, the naval stores act, and the insecticide and fungicide act, will be handled by the Food, Drug, and Insecticide Administration, which will be administered by W. G. Campbell, director of regulatory work of the department. What was left of the Bureau of Chemistry is combined with the Bureau of Soils to become a new Bureau of Chemistry and Soils, for which the department has recently been seeking a chief. In a letter to *Science* of April 15, 1927, Dr. Harvey W. Wiley displays considerable excitement over the change and declares that the Bureau of Chemistry has been led to the guillotine, and also that "The only persons, then, who really wanted to see the Bureau of Chemistry divorced from the Food and Drugs Act were the adulterators of foods and drugs." In spite of Dr. Wiley's wrath, misdirected as usual, there is little doubt but that the changes have been made in the interest of more effective administration and will result in increased efficiency.

State Health Legislation—In addition to items of new health legislation in the states previously reported in this department, information regarding several other new laws has been received. Thus, in New Jersey, there was passed over the governor's veto a law authorizing boards of education to employ school nurses, in addition to school physicians. Arizona adopted a law requiring physical education in the schools. On the other hand, Indiana repealed a law requiring elementary and high schools to give courses in nutrition. This information is taken from a news summary of the U. S. Children's Bureau.

In New Hampshire the legislature turned down a bill for the sanitary regulation of tourist camps after the measure was denounced as an attempt to create bureaucracy and as a scheme to provide jobs for a lot of "snoopers." The *Bulletin* of the State Board of Health reproduces an editorial from a local newspaper, the *Nashua Telegraph*, condemning this action and ending with the disgusted comment that, "As the matter stands now, the tourist camp owner in rural New Hampshire and his help may be just as dirty as they please." Such items ought to be brought to the attention of

all motorists who contemplate trips to New England.

Income **Tax Reduction for Sanitarians**—A decision of the United States Board of Tax Appeals, promulgated May 12, 1927, is of great interest to sanitarians, as it would seem to serve as a precedent for allowing deductions from individual income taxes of travelling expenses personally paid to attend scientific meetings. In this case, Alexander Silverman v. Commissioner of Internal Revenue (Docket No. 10389), the petitioner attended a meeting of the American Chemical Society and other meetings at his own expense. In its opinion, the board says, "The board has held that expenditures of the character and made under the circumstances involved in this proceeding are deductible as ordinary and necessary business expense." This would signify that sanitarians who personally pay their own expenses to attend the convention of the American Public Health Association or other similar meetings may deduct from their income tax returns the amount paid. Before this is final, however, sufficient time must elapse for an appeal to the courts.

"A **Funeral a Day Keeps the Doctor Away**"—The law is not without its lighter side, as shown by the following report of a case given in the West Publishing Company's *Docket* for June, 1927:

"Maude M. Streett and others brought an action against Myra H. Marshall and others (291 *South Western Reporter*, 494) to perpetually enjoin the operation of a funeral home in a residential district. Plaintiffs' witnesses all testified to the effect that the operation of a funeral home would be deleterious to the health of residents in the neighborhood. Defendants' experts, however, did not agree with the witnesses who testified for plaintiffs. One of them was of the opinion that the living observer, seeing a passing funeral, would realize that another, and not he, was on the way to the cemetery. Another was of the opinion that a person suffering from nervousness or depression might be benefited by being situated where he could view passing funeral processions. However, the court found for plaintiffs."

Stream Pollution Legislation—A studious and comprehensive discussion of proposed legislation in connection with stream pollution and the formation of a stream conservation board has been prepared by G. H. Hazlehurst, chief sanitary Engineer of Alabama, and has been issued as a mimeographed report of 48 pages. Presumably a few copies are available and will be sent by Mr. Hazlehurst to those who will be actually benefited thereby.

According to an excellent review of this excellent study, by Mr. J. H. Hoskins in a recent issue of *Public Health Engineering Abstracts*, "The author suggests: (1) The enactment of a law similar to that in force in Kansas for the control of stream pollution, and (2) the creation of a Stream Conservation Board, patterned after the Pennsylvania Sanitary Water Board, to have administrative charge of the stream control laws. Proposed drafts of these legislative acts are given, followed by a discussion of their features. The organization and policies of the Pennsylvania Sanitary Water Board are reviewed in some detail, as well as the principles of stream conservation recommended by the committee on Sanitary Conservation of Streams of the Conference of State Sanitary Engineers."

Miscellaneous Items—The regulation and control of physicians and surgeons by public authority is outlined by Lawrence A. Steinhardt, LL.B., of New York in an article in the *Journal of the American Medical Association* for June 4, 1927 (page 1833). There is a wealth of material here, presented, however, in a rather jumbled and none too coherent manner.

In Indiana it is reported that a temporary injunction was granted on June 4 prohibiting the board of health and school board of Indianapolis from enforcing an order requiring vaccination as a prerequisite to school attendance. Indiana is one of the states where the legal aspects of vaccination are not liberal.

CONFERENCES

Aug. 7–12, World Federation of Education Associations, Toronto, Can.

Aug. 25–31, National Woman's Christian Temperance Union, Minneapolis, Minn.

Aug. 29–31, Idaho State Medical Association, Twin Falls, Ida.

Sept. 4–9, National Conference of Catholic Charities, Los Angeles, Calif.

Sept. 12–16, American Academy of Ophthalmology and Oto-Laryngology, Detroit, Mich.

Sept. 12–16, American Electro-Therapeutic Association, New York, N. Y.

Sept. 15, 16, 17, American Association of

Obstetricians, Gynecologists, and Abdominal Surgeons, Asheville, N. C.

Sept. 20–23, American Roentgen Society, Montreal, Can.

Sept. 26–28, Mississippi Valley Conf. on Tuberculosis, St. Louis, Mo.

Sept. 27–Oct. 1, Girl Scouts' National Convention, Briarcliff, N. Y.

Sept., last week, New England Health Institute, Providence, R. I.

Oct. 17–21, American Public Health Association, Cincinnati, O.

Laboratory Position (chemical and bacteriological) wanted by young woman with M.S. degree from a mid-western university. Has had nine years' experience in charge of public health laboratory in a city of 140,000. Address 23 M.S., care of this JOURNAL, New York address.

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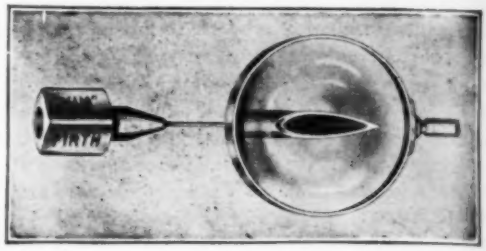

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A Safe and Dependable Prophylactic

RABIES is invariably fatal. For this reason even the most trivial wounds from bites of dogs apparently normal should be treated as if the animals were rabid. After a most thorough cauterization of the wound, Rabies Vaccine (Cumming), P. D. & Co., may be administered without fear of infecting the patient, since this vaccine does not contain the living virus.

Not only is Rabies Vaccine (Cumming), P. D. & Co., harmless, but its administration is no more technical or difficult than an ordinary hypodermic injection. There is no gradation of doses; all the doses are alike.

Rabies Vaccine (Cumming), P. D. & Co., is supplied in packages of seven 2-cc. syringe containers. On receipt of an order we supply a package of seven syringes immediately, and the remaining one or two packages at intervals of four days. The average case of mild or uncertain exposure requires only 14 daily injections. In face wounds or severe lacerations anywhere, 21 doses are necessary.

The 24-page booklet, "Rabies Vaccine (Cumming)," will be supplied to any physician on request.

PARKE, DAVIS & COMPANY

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DETROIT, MICHIGAN

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